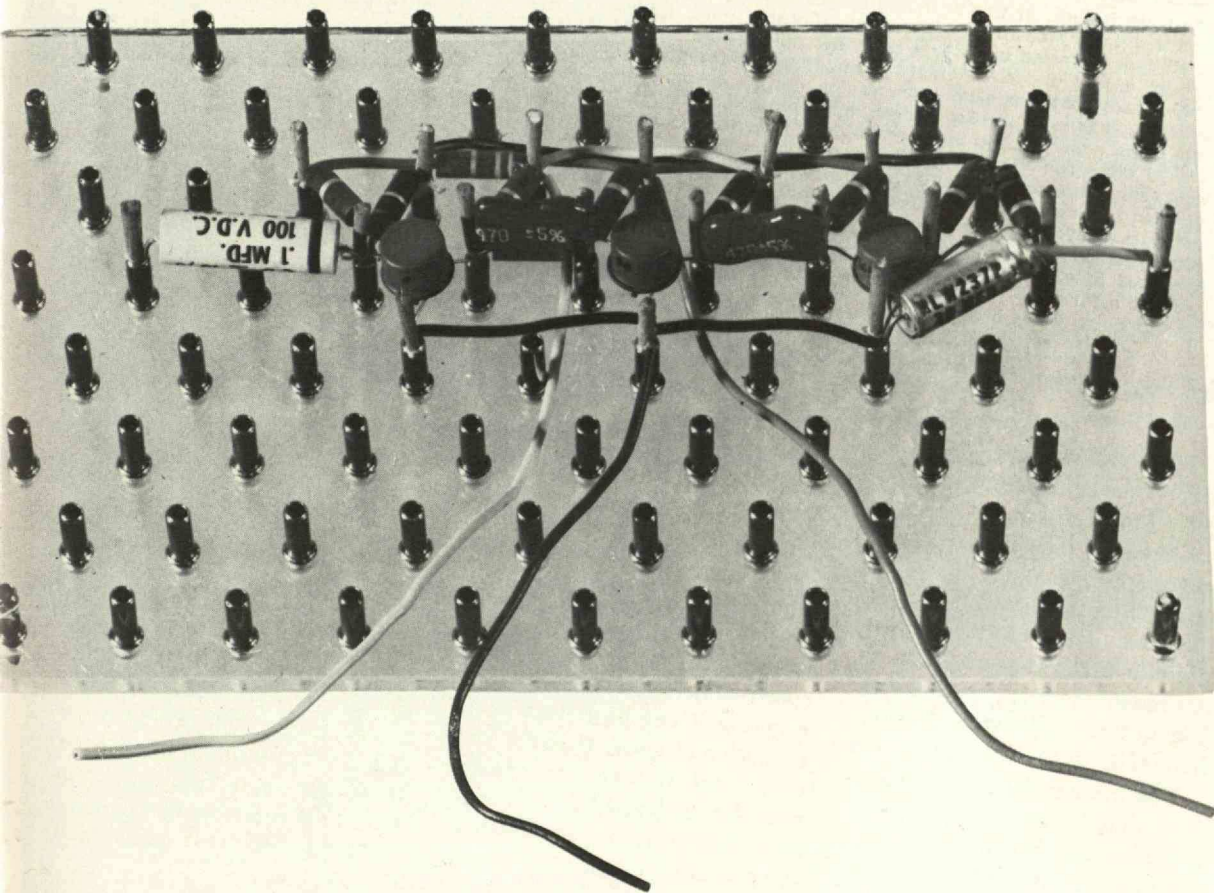


Technology Review

DECEMBER 1961

Edited at Massachusetts Institute of Technology



Learning With Toothpicks

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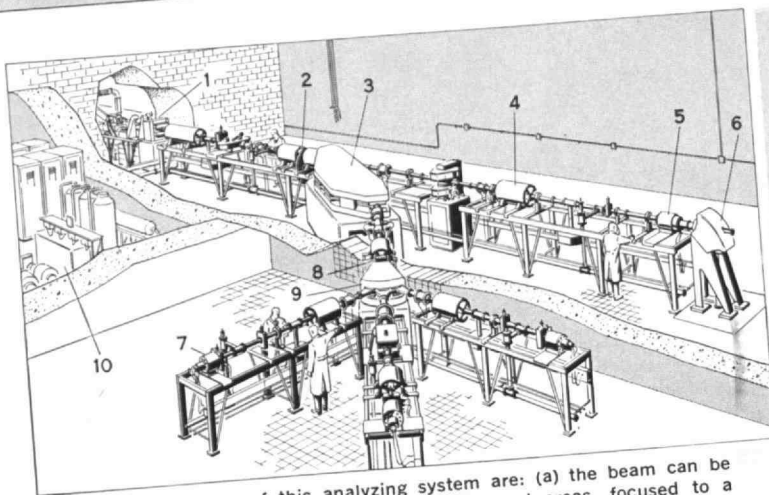
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technology review

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"CHARGED PARTICLES"



Typical high power electron beam analyzing and deflecting system for 10 to 80-Mev, 30 kw linac

1. Linac
2. Positron Target
3. Deflecting Magnet System and Energy-Defining Slits
4. Focusing Lens
5. Neutron Target
6. Terminating Magnet
7. Targets (3)
8. Monoenergetic Gamma Target
9. Switching Magnet
10. Equipment Room

The main features of this analyzing system are: (a) the beam can be delivered to any of three different experimental areas, focused to a small spot or spread out over a large area to facilitate target cooling; (b) net energy dispersion of the beam after deflection is negligible. This means that maximum beam of the desired energy is available because particles of varying energies move along the same center line into target regions; (c) in the deflecting magnet system there is a large energy dispersion at a collimator, which selects the required energy spectrum with a precision of 0.1 per cent or better; (d) the part of the electron beam discarded at this collimator or elsewhere in the system produces x-rays, the major portion of which are directed away from experimental areas; (e) the system can be converted to handle positrons produced in a shower target close to the entrance of the deflecting magnet system.

High Power Linacs

In a recent discussion of *High Energy Linacs*, we indicated that the power of the new accelerators, plus better energy resolution opens up intriguing possibilities for the experimental physicist. One of these possibilities involves production of a monoenergetic gamma-ray beam, with adjustable energy, heretofore just a dream.

Positron annihilation in flight in a thin target produces such a gamma-ray beam. The linac electron beam is used to produce positrons in a wide energy spectrum in a shower target. These particles are energy-analyzed in a deflecting magnet before they impinge upon the annihilation target. Energy selection of the gamma rays is accomplished by varying the magnetic field of the deflecting

magnet. The conversion factor is small, so it is essential to have an intense electron beam. It is not essential, however, to have a high degree of beam-energy homogeneity.

An experiment in which beam-energy homogeneity is important is the spectroscopic study of inelastically-scattered electrons from nuclei. Magnetic spectrometers for this kind of experiment can be built with a resolution of better than 0.1 per cent, and the electron beam must be analyzed to this accuracy before it impinges upon the scattering target.

Hot Electron Beams

The high accuracy and power called for in these experiments requires considerable beam-handling ingenuity. The problems may be illustrated: A typical high-energy linac will

put 45 kw of high-energy electrons on a one-half centimeter square—this equals 180 kw/cm², enough to vaporize any known material in a few seconds. To make such a system fail-safe requires precisely-protected beam slits and electron scattering devices, and specially cooled vacuum chambers, in addition to the analyzing and collimating equipment. The situation is complicated by an x-ray background which prohibits use of organic materials for coil insulation and vacuum gasketing.

The beam analyzing and deflecting system is an increasingly complex and important part of the linac experimental facility. An inadequate system will greatly reduce the accelerator's research utility. Fortunately, High Voltage Engineering has had years of experience designing and building extremely accurate, magnetic analyzing systems to guaranteed specifications.

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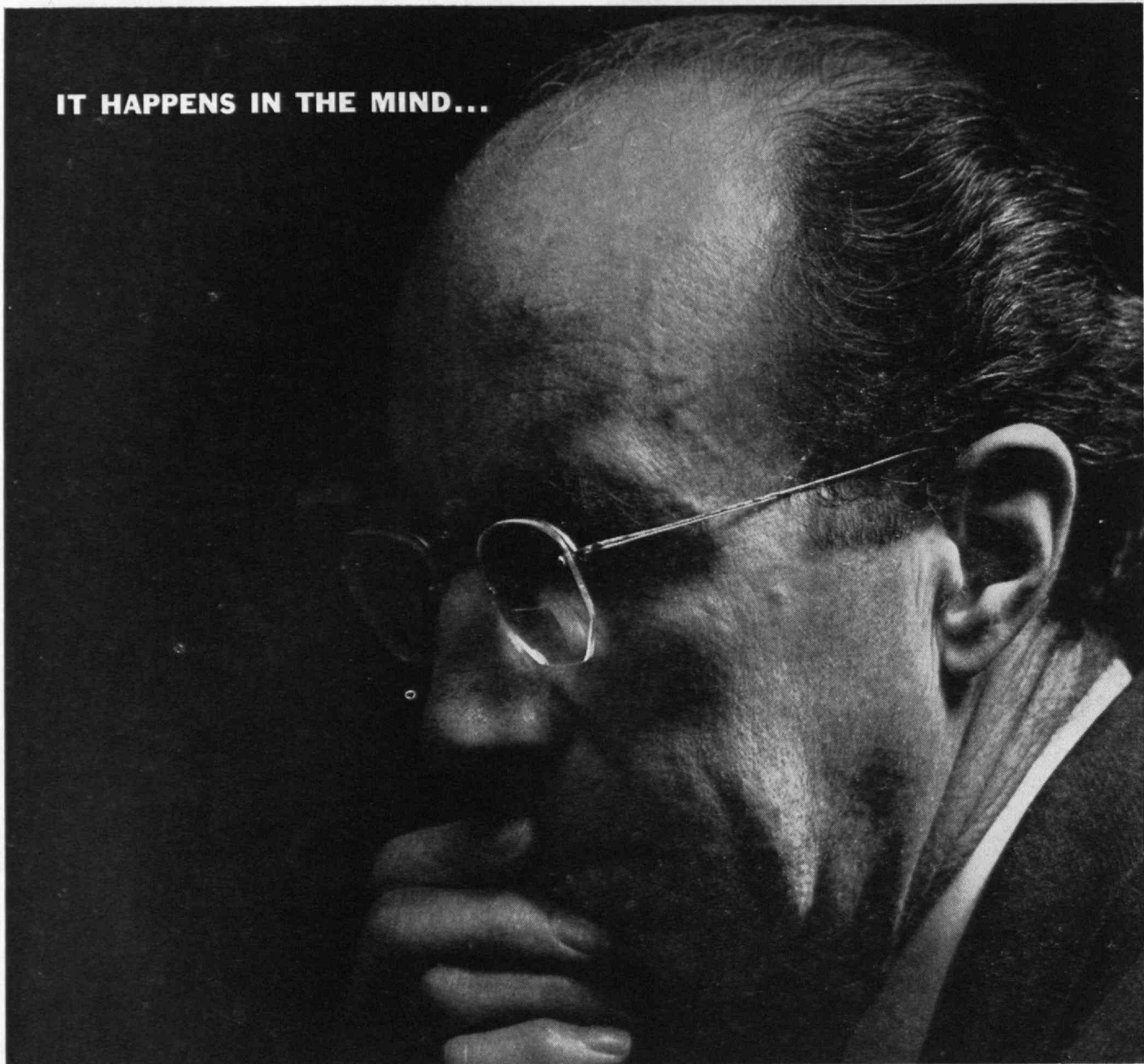
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BELL TELEPHONE SYSTEM

Technology Review

Reg. U.S. Pat. Off.

Volume 64, Number 2

Edited at the Massachusetts Institute of Technology

December, 1961



BUILDING plans of many kinds are being considered at M.I.T. Above is a proposed extension to the Dorrance Building for work in life sciences. A new model of the Earth Sciences building is shown on page 15, and there are photos of the new Harvard-M.I.T. Electron Accelerator's impressive quarters on page 29.

Feedback

Coverage of M.I.T.

FROM ARTHUR J. WEINBERGER, '41:

I'd like to compliment you and the staff of *The Review* for a fine job over the years. I hope you will not be unduly influenced by the "Letter to the Editor" last year, which urged less reporting of activities about M.I.T., and more articles with "intellectual stimulation." For many of us *The Review* is our only continuing contact with M.I.T., and I would hate to see reporting of M.I.T. activities curtailed.

Stamford, Conn.



The new center of alumni population had 286 people in 1950, and 301 in 1960, official U.S. Census reports show (see page 33 of this issue of *The Review*).

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Joan B. Brassert, Roberta A. Clark; BUSINESS STAFF: Madeline R. McCormick, Patricia A. Fletcher; PUBLISHER: H. E. Lobdell, '17.

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Individuals Noteworthy

Charles L. Miller, '51 Heads Department Of Civil Engineering

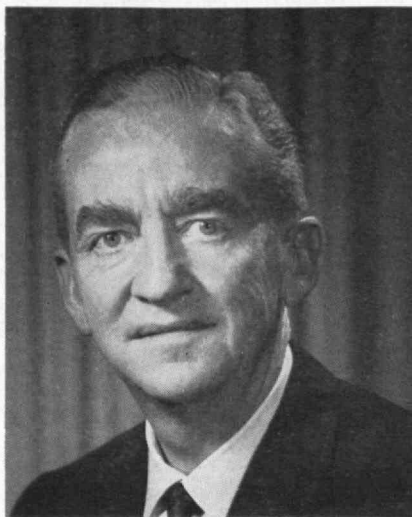
DEAN Gordon S. Brown, '31, of the School of Engineering, has announced the appointment of Professor Charles L. Miller, '51, as Head of the Department of Civil Engineering.

In announcing the appointment, Dean Brown said: "Civil Engineering at M.I.T. has been undergoing rapid change and development. Extensive faculty studies have brought the educational and research objectives of the department into clear focus and are providing the basis for a new era in civil engineering activity at the Institute. Professor Miller has played an important role in evolving the new program and plans. As head of the department, he is charged with implementing the objectives and goals of a dynamic program in civil engineering."

Professor Miller's professional contributions have been in information systems as applied to civil engineering. He has made noteworthy contributions in the areas of digital computer methods and photogrammetric systems, having evolved the Digital Terrain Model System of location analysis and the COGO System for civil engineering communications with electronic computers. In addition to having developed the Photogrammetry Laboratory, he was responsible for the formation of the new Civil Engineering Systems Laboratory for interdisciplinary research on a wide range of civil engineering problems.

Born in Tampa, Fla., in 1929, Professor Miller received both his bachelor's and master's degrees from the Institute. For four years prior to his appointment to the Faculty in 1955, he was with the firm of Michael Baker, Jr., Inc., Consulting Engineers.

Professor and Mrs. Miller have three children and make their home in Lexington, Mass.



Samuel Herrick

The Hunsaker Professor

THIS YEAR'S Jerome Clarke Hunsaker Visiting Professor at M.I.T. is Samuel Herrick, on leave of absence from the University of California at Los Angeles, where he is professor of astronomy. Dr. Herrick is an authority on celestial mechanics and astrodynamics, and especially interested in trajectory analysis, guidance problems, and the reduction of satellite and related data.

He is giving a graduate course in astrodynamics at the Institute, participating in seminars and research, and will give the Minta Martin lecture next spring. This lecture is sponsored annually by the Department of Aeronautics and Astronautics and the Boston section of the Institute of Aerospace Sciences.

Dr. Herrick studied at Williams College and the University of California at Berkeley. He founded the Institute of Navigation, and was its president in 1952-1953. He is now a director of the American Rocket Society.

Professor Wiener Injured

A FALL on the stairs in Building 1 sent Institute Professor Norbert Wiener to the Massachusetts General Hospital this fall. He recovered rapidly, however, and resumed preparations for further travels abroad.

Faculty Activities

GEORGE R. HARRISON, Dean of the School of Science at M.I.T., and Alan T. Waterman, Director of the National Science Foundation, were nominated to be president-elect of the American Association for the Advancement of Science this year. Results of the election will be announced at the Denver meeting of the AAAS this month. Participants in its Denver program will include Professors *Arthur R. von Hippel*, *Jerome Y. Lettvin*, and *Giorgio de Santillana*.

The American Institute of Electrical Engineers presented the David Sarnoff Award in Electronics this year to *Charles H. Townes*, Provost of M.I.T. . . . Other recently announced honors included the American Chemical Society's Award in inorganic chemistry, sponsored by Texas Instruments Incorporated, to Professor *F. Albert Cotton*; the same society's award in the chemistry of milk, sponsored by the Borden Company Foundation, to Professor *David F. Waugh*; and the Kendall Company Award in colloid chemistry, to Emeritus Professor *George Scatchard*.

John T. Howard, '35, Head of the M.I.T. Department of City and Regional Planning, discussed "Airports: Access and Community Impact" at a Hartford, Conn., symposium on air transportation in November. . . . Provost *Charles H. Townes* discussed "Masers and Other Solid State Devices" at a recent meeting of the Corporate Associates of the American Institute of Physics, and M.I.T. was one of 16 institutions given silver certificates in recognition of a quarter century of continuous support of its services in the field.

Dr. Stratton's Assistant

DOUGLAS A. EAST, '55, has joined the office of M.I.T. President Julius A. Stratton, '23, as Administrative Assistant. He received the Goodwin Medal for outstanding teaching in June, 1960, and is now a candidate for the doctor's degree.

James G. Kelso has assumed new responsibilities as Assistant to the Chairman of the Corporation and Special Assistant in the Development Office. He will be concerned with community relations and Second Century Fund work.

(Continued on page 6)

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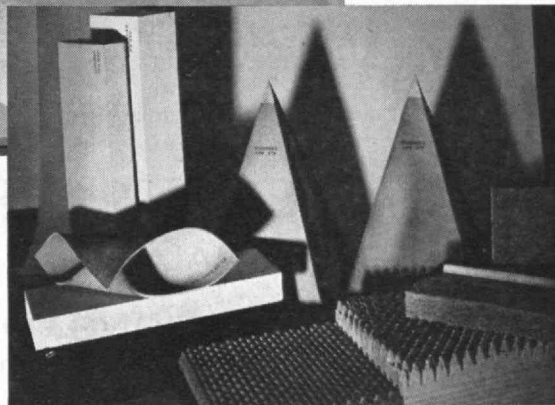
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Individuals Noteworthy

(Continued from page 4)

Honors to Alumni

MEDALISTS and recent recipients of other distinctions include:

John T. Norton, '18, the Plansee Plaque, for contributions to powder metallurgy, at the 4th International Plansee Seminar, Reutte, Austria . . . *Crawford H. Greenewalt, '22*, the 1962 John Fritz Medal, by United Engineering Trustees, Inc. . . . *Oscar H. Horovitz, '22*, named a Fellow, by the Photographic Society of America;

Harold E. Edgerton, '27, named an Honorary Fellow, by the Institute of Amateur Cinematographers . . . *R. B. Woodward, '36*, the first Pius XI Gold Medal, for "achievements in chemical synthesis," by Pope John XXIII . . . *Howard K. Schachman, '39*, the American Chemical Society Award in Chemical Instrumentation, sponsored by E. H. Sargent & Company . . . *Milton M. Platt, '42*, the first Fiber Society Award for "distinguished achievement in basic or applied fiber science," by the Fiber Society.

(Continued on page 10)

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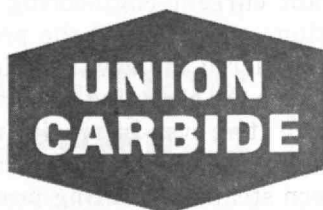
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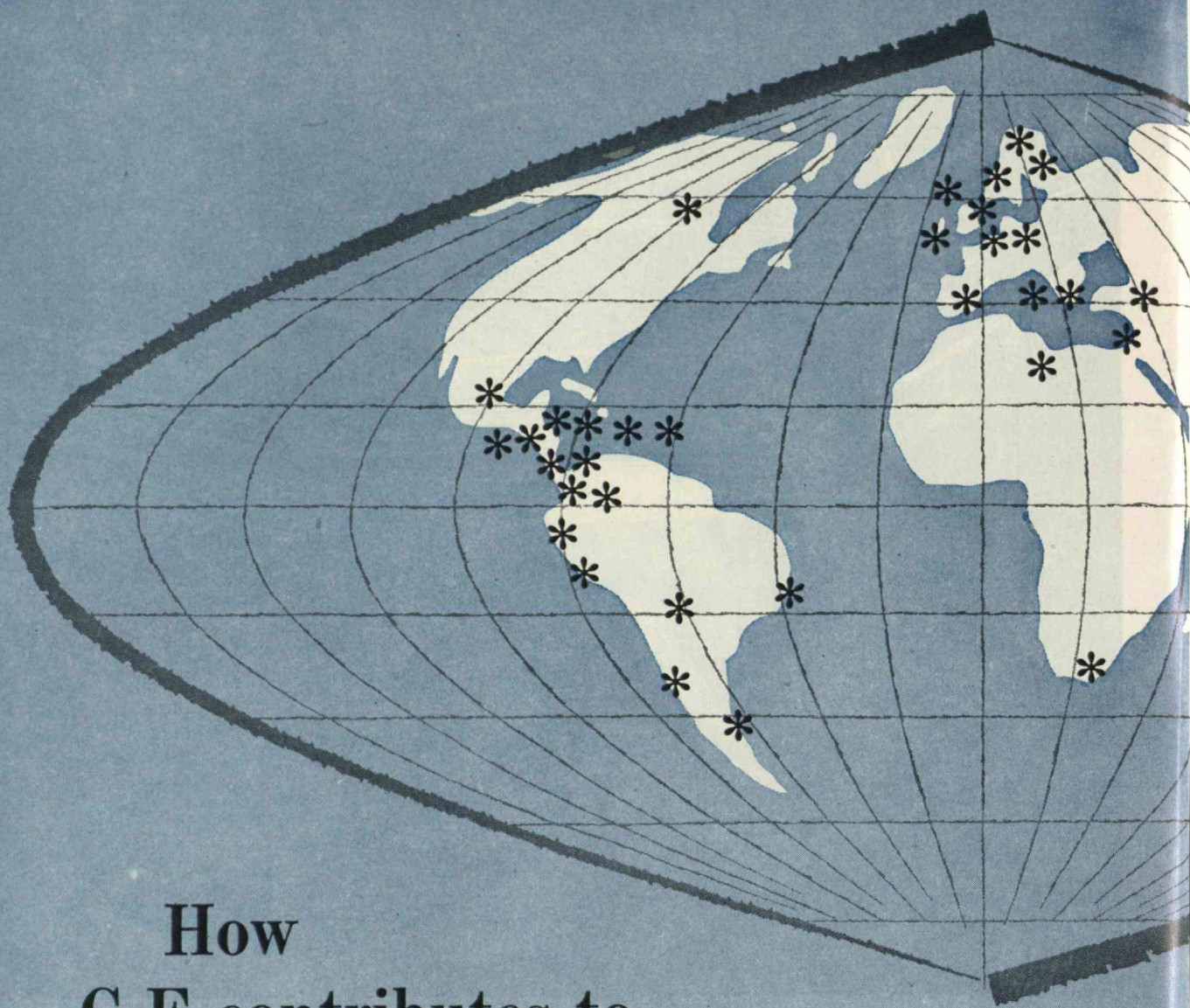
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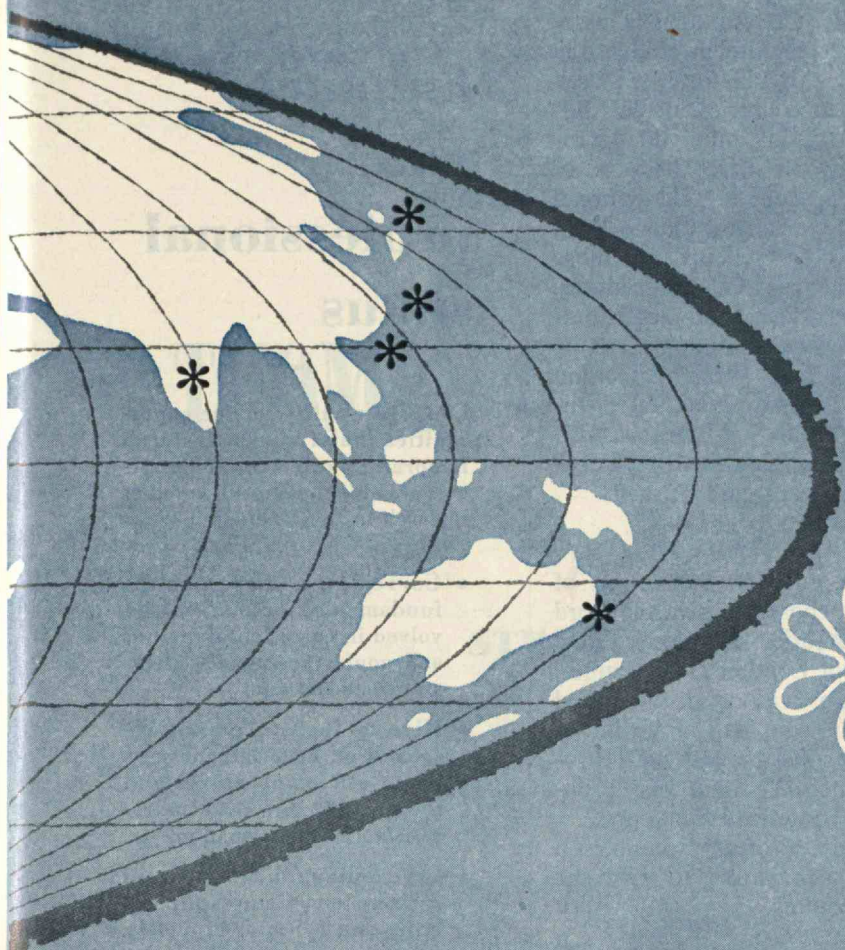
sociates, affiliates and licensees throughout the free world, believes that this interchange of knowledge is vital not only to the individual members, but to the team itself. In turn, this attitude assures users of steam generating equipment that, no matter the country, their equipment will be as modern as tomorrow, when it bears the insignia of the C-E flame.

*Excerpts from message to Conference
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(Continued from page 6)

Visiting the Middle East

EUGENE R. CHAMBERLAIN, associate adviser to foreign students at M.I.T., left this fall for a six-week tour of seven countries in the Middle East to study admissions programs of schools there, the work of agencies engaged in international educational exchanges, and to learn first-hand how schools in those countries interpret U.S. procedures.

M.I.T. has the second largest percentage of foreign students among U.S. schools, and Mr. Chamberlain hoped to visit many parents of students and Alumni as well as visit schools in Iran, Kuwait, Iraq, Lebanon, Syria, Egypt, and Turkey.

Lectures Abroad

PROFESSOR Paul A. Samuelson of M.I.T. was chosen to give the Lord Stamp Memorial Lecture at the University of London in November. Lord Stamp was a distinguished businessman who was a victim of the bombing in the last war. Professor Samuelson's topic was "Problems of the American Economy."

Next May, Professor Samuelson will go to Stockholm to give the Wicksell lectures.

(Continued on page 38)



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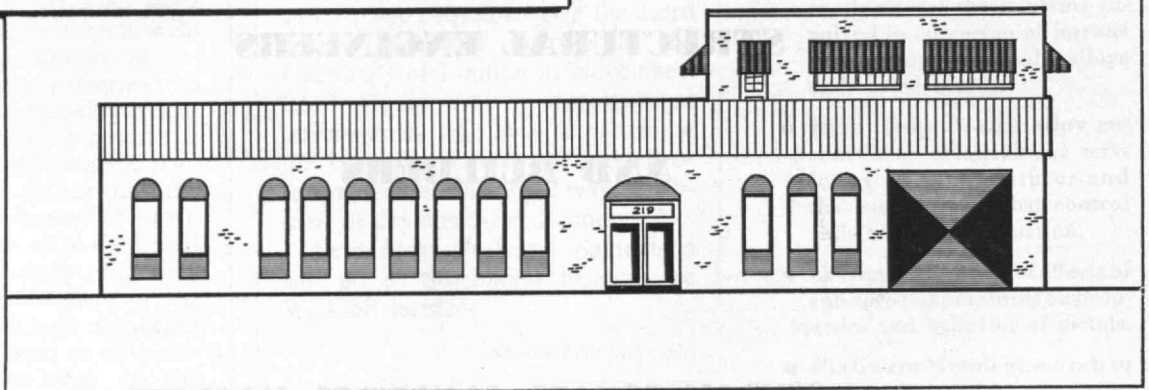
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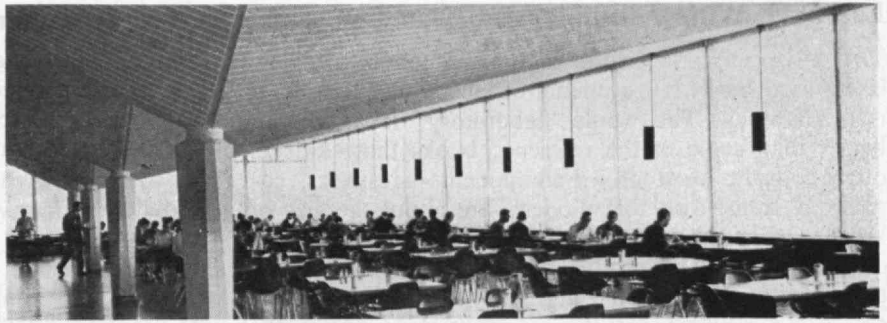
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The New Materials Center

WORK has begun, President Julius A. Stratton, '23, disclosed in his annual report this fall, on the architectural design of a home for the M.I.T. Center for Materials Science and Engineering. A \$3,275,000 contract to further research in materials was concluded with the Advanced Research Projects Agency last June, and organization of the center has proceeded since then under the direction of Institute Professor John C. Slater and Professors Peter Elias, '44, and Nicholas J. Grant, '44. The Materials Center will be an interdepartmental laboratory in which Faculty members and students from many departments of both the School of Science and the School of Engineering will participate.

Research and teaching in the field of materials science and engineering will continue to occupy considerable space in the present buildings and will expand into the 150,000 square feet of new space to be made available by the new building. Plans are being made now to move certain research programs in the Departments of Physics, Chemistry, Metallurgy, and Electrical Engineering into the new quarters.

The new five-story building will be located immediately north of the great dome, will join to Building 10 and extend west to Building 7 and east to Building 12. Its construction will be a first step in the redevelopment of the North Campus in keeping with the original concepts of Welles Bosworth, '89, the architect of the main buildings erected in 1916.

The new building will also provide a headquarters for the administrative services for the center and will permit the consolidation of central facilities for crystal growth, analytical chemistry, electron microscopy, shops and stockrooms for research in materials. Elwood W. Schafer, '32, has returned to the Institute to handle these administrative matters for the Materials Center.

Many surrounding facilities, including an IBM 709 computer now being installed on the fourth floor of Building 10 to provide increased computer time for scientific problems, will contribute to this centralization of activities in materials science and engineering.

"There is perhaps no other new field that affects directly the interests of so many departments," President Stratton noted, "and all have co-operated magnificently in planning new curricula and new teaching laboratories in this rapidly developing area."

A Bank Supports Education

THE New England Merchants National Bank established a broad new policy of financial support for educational institutions by making a \$25,000 grant to M.I.T. this fall.

"Business and industry in Massachusetts have special reason to support education and, in particular, M.I.T.," said Richard P. Chapman, the bank's President. "The economy of the state is undergoing a period of important adjustment brought on by the rapid technological and economic change. To a greater extent than ever before, Massachusetts must develop its technological resources in order to accelerate industrial growth. M.I.T. has had a major part in contributing the ideas, the scientists and engineers, and the momentum for the emergence of research-based industry. Banks are playing a constructive role in providing essential capital for new-growth industries. We can also help quicken economic growth by supporting education and research."

In acknowledging the grant, James R. Killian, Jr., '26, Chairman of the M.I.T. Corporation, said: "I wish to express gratitude, not only for M.I.T. but also on behalf of all private educational institutions, which depend increasingly upon the business community for financial aid. In view of the enormous demands now being made on colleges and schools, we must look to new sources of support to augment the older and traditional forms of individual benefactions. The generous assistance of business and industry can be a vital factor in maintaining the independence and strength of our private educational institutions."

WTBS Is on the Air

THE M.I.T. students' educational FM radio station, WTBS, went on the air this fall with a three-hour program of recordings that included *John Brown's Body* and *Pagliacci*. Station Manager Lewis M. Norton, '62, says the station's high-fidelity capabilities permit a radiated audio frequency response of 50 to 15,000 cycles per second with a maximum distortion of 1 per cent. Quality technical specifications were met by student engineers, who built much of the station's equipment.

PICTURED ABOVE is the interior of the new Burton House dining room. The Alumni Fund helped provide this and other improvements in housing for M.I.T. men.

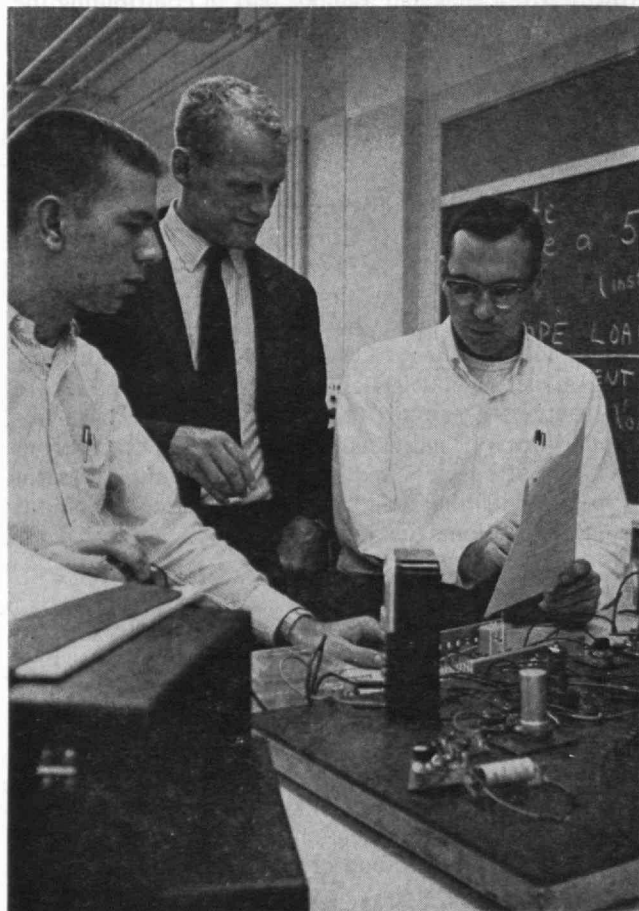
Learning With Toothpicks

THE KEY ELEMENT in the take-home laboratory now being used by M.I.T. students of electrical engineering is a toothpick. The whole "laboratory" is a box no bigger than some of the reference books that students often consult. Most of its components—resistors, capacitors, transistors, and diodes—are about the size of kernels of corn, and students assemble them into circuits on a pocket-sized plugboard. Toothpicks are used to hold tiny wires against the metal sides of tiny sockets. (The resilience of the wood used in toothpicks makes them ideal wedges.)

With a box of parts, a transformer, rectifier, meter, and a handful of toothpicks, a student now can perform many experiments in his room. He often must still go to a central laboratory for an oscilloscope, signal generator, or some other device, the way he goes to a library for reference material, but much of his work can be done at whatever pace and hour he chooses.

Richard D. Thornton, '54, Associate Professor of Electrical Engineering, developed the new kits with the help of William F. Schreiber, Associate Professor of Electrical Engineering, and others, as part of the current intensive effort to improve undergraduate education in engineering at M.I.T. The kits were created to encourage thoughtful experimenting by making it convenient.

The kits also have proven to be economical. A complete unit can be assembled for less than \$50, and most of the parts can be used time after time.



Richard D. Thornton, '54 (center), checks work being done with take-home equipment by electrical engineering students.

The Treasurer's Report

LAST YEAR'S changes in the Institute's financial affairs were summarized as follows in the report of Joseph J. Snyder, '44, Vice-president and Treasurer, to the Corporation this fall:

	1960-61	1959 60	Change
Academic operations	\$ 29,889,000	\$ 25,468,000	+\$ 4,421,000
Departmental and interdepartmental research	20,314,000	17,763,000	+ 2,551,000
Lincoln Laboratory, Instrumentation Laboratory, and Operations Evaluation Group	56,996,000	48,787,000	+ 8,209,000
Total funds	122,657,000	114,625,000	+ 8,032,000
Plant assets	49,269,000	44,814,000	+ 4,455,000
Gifts and grants	14,584,000	17,355,000	— 2,771,000
Investments			
Market value	191,252,000	173,574,000	+ 17,678,000
Book value	121,706,000	113,043,000	+ 8,663,000

Operations in 1960-1961 and the previous year were compared in this table:

Revenues and funds	1960-61	1959 60
Tuition and other income	\$ 9,054,000	\$ 7,889,000
Investment income	1,832,000	2,223,000
Gifts and other receipts	8,270,000	6,081,000
Allowances for indirect expenses	8,802,000	7,432,000
Dining and student housing	1,931,000	1,843,000
Total	\$29,889,000	\$25,468,000
Expenses		
Academic	\$12,299,000	\$10,670,000
General and administration	10,915,000	9,017,000
Plant operations	4,744,000	3,938,000
Dining and student housing	1,931,000	1,843,000
Total	\$29,889,000	\$25,468,000

Funds sharing in the income from the general investments earned 6.29 per cent on the average book value compared to 6.36 per cent last year.

A Minister and Engineer

RANDALL L. GIBSON, '51, both works in the Instrumentation Laboratory at M.I.T. and serves the First Unitarian Church of Woburn, Mass., as its minister. He attended the Harvard Divinity School after receiving his M.I.T. degree in Electrical Engineering and is now pursuing two careers.

In the laboratory he works on components for inertial guidance systems used in missiles. "I would prefer," he recently told *The Boston Herald*, "that nobody had to do any kind of work that was connected with the possibility of war, but the fact of the matter is that we're in a jam. We've been backed into a corner and need both a positive defense posture and greater concentration on the means of achieving understanding."

His church has about 100 parishioners and an edifice built in 1870. The building is being modernized and from its pulpit the Reverend Gibson tries to speak "to the needs of the present."

The Big WGBH Fire

THE studios of WGBH in the Hennessey building across Massachusetts Avenue from the main M.I.T. buildings were destroyed October 15 by one of the biggest fires in the Institute's history. The early morning, three-alarm fire, generally ascribed to defective wiring, damaged the three-story building so greatly that it probably will not be restored.

WGBH, which is Boston's famed educational FM and TV station, was able to resume broadcasting quickly with the facilities of the Television Center of the Catholic Archdiocese and the help of commercial broadcasters and many friends. A drive for funds to replace the station's lost equipment and enable it to continue its services was launched immediately.

The drug store, restaurant, and other businesses which occupied the first floor of the building have been greatly missed. Institute students who cracked the books there have been driven elsewhere, the Tranquility Club which met faithfully in Walton's for years has not yet agreed on a new meeting place, and the coffee machines within walking distance of Institute offices and classrooms have been overworked.

The Orbiting Dipole Experiment

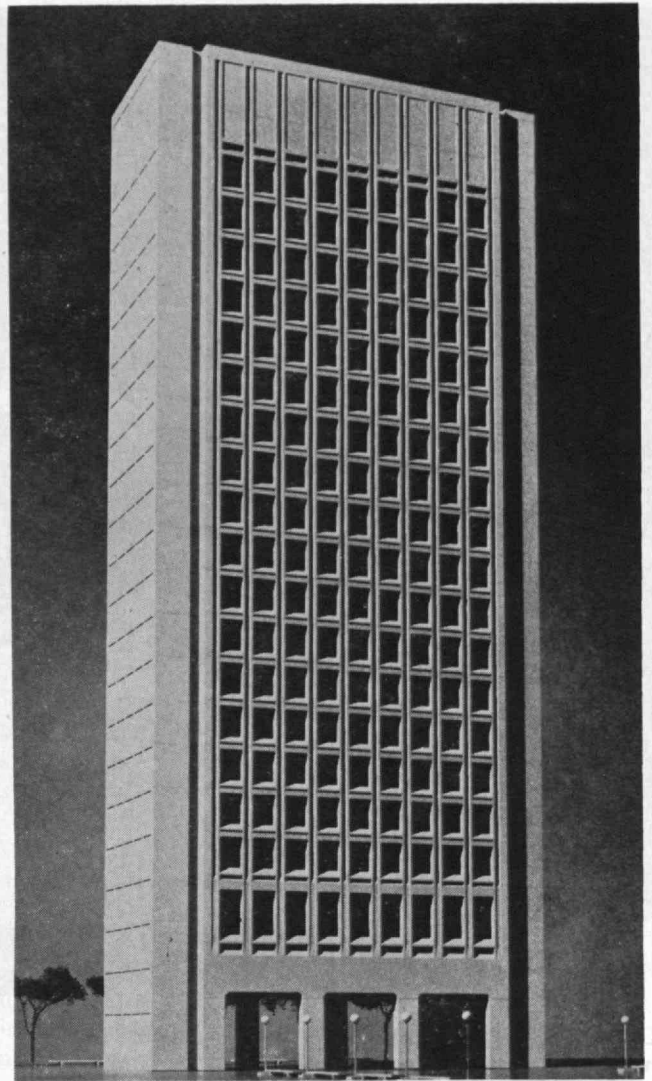
LINCOLN LABORATORY was continuing the radar search, as this issue of *The Review* went to press, for the millions of tiny dipole fibers sent aloft from Point Arguello, Calif., as part of an experiment in long-range communications undertaken for the Air Force.* "Information about the location and distribution of the dipoles will be released as soon as it becomes available, to enable astronomers to participate in the observations," the laboratory said. "The precise location of the orbit must be provided to astronomers because of the great difficulty in locating these dipoles without prior information."

The Omega Meson Is Found

HOW MANY fundamental particles are there? New ones have been found, at a rate of about one a year, for so many years now that it is reasonable to wonder whether those with very short lives should be classified as new elementary particles or excited states of older ones.

The latest to be discovered is the omega meson. It has 1,540 times the mass of an electron but no electric

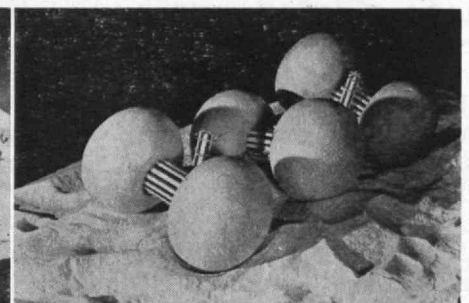
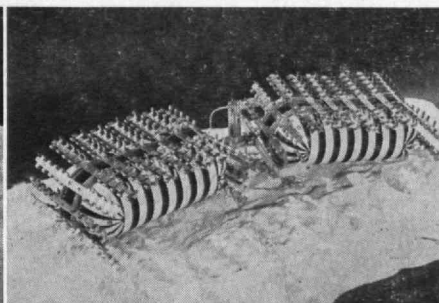
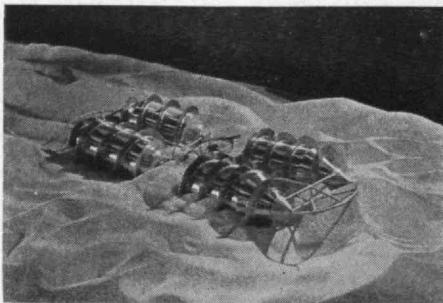
*See "Useful Belts in the Sky," *Technology Review*, Nov., 1960, p. 23.



PLANS for an Earth Sciences Building at M.I.T. have been revised to keep costs in line. This is the model of the structure that is to be the Institute's first skyscraper.

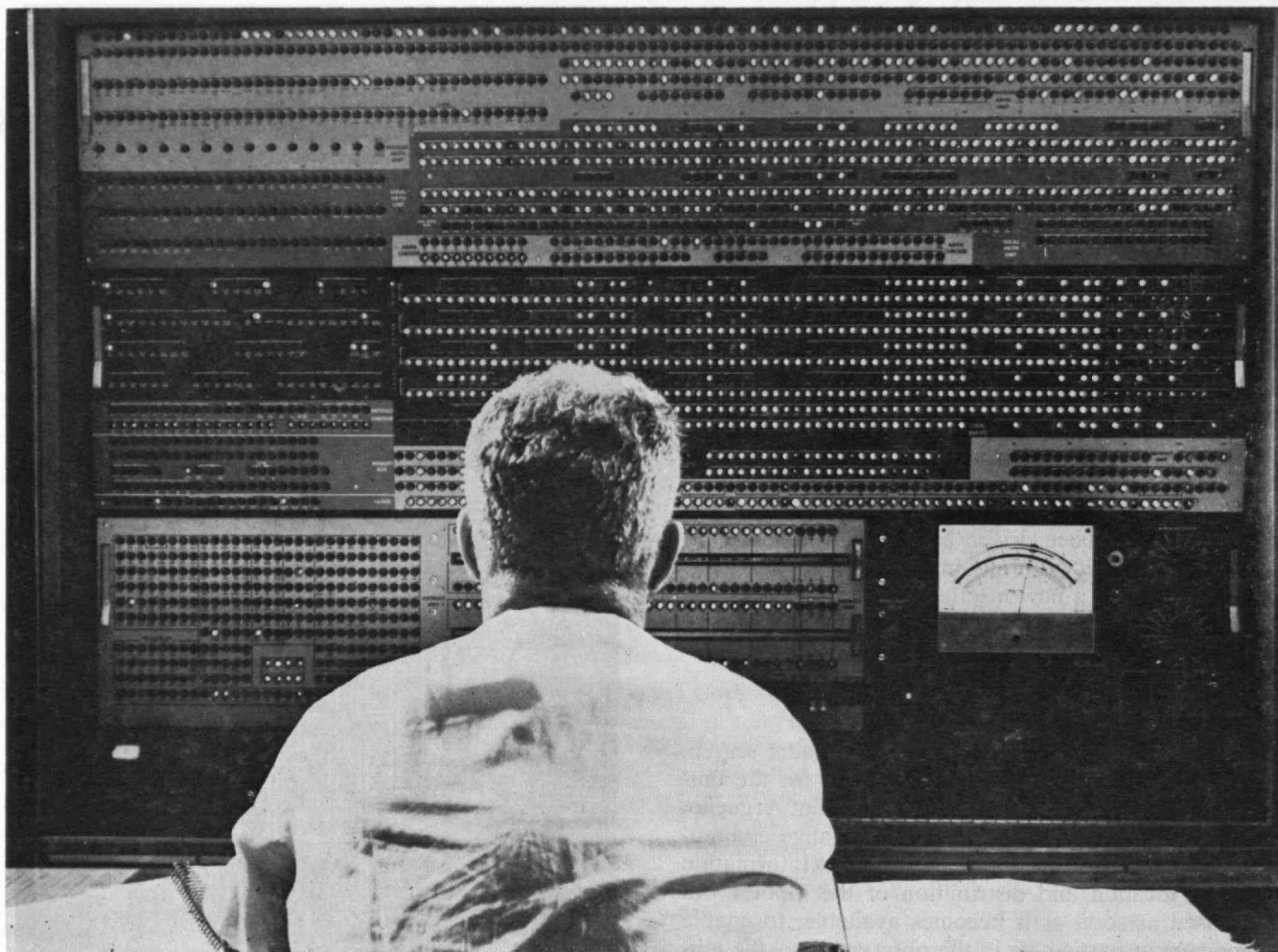
charge, and its mean life is only about 10^{-22} second. An elaborate study of 30,000 bubble-chamber photographs yielded evidence of the presence of about 80 such mesons in 800 reactions involving other mesons.

B. C. Maglic, who received his doctorate in physics at M.I.T. in 1959, was a member of the group reporting this work, done at the University of California's Lawrence Radiation Laboratory, in *Physical Review Letters*.



THREE BASIC MEANS of land-vehicle locomotion—screws, tracks and wheels—are being evaluated as to suitability for the moon's surface in General Motors' Defense Systems Division headed by Harold R. Boyer, '22. The

models pictured here have been driven over a variety of soils. Mr. Boyer says workers in GM's Santa Barbara, Calif., laboratories also are engaged in studying problems related to other features of vehicles sent on extraterrestrial missions.



COMPUTING CAPABILITIES next door to the Institute will be impressive when Technology Square, a multimillion dollar industrial research and office center, is completed.

Experimenting Freshmen

THIRTY-SEVEN seminars for freshmen were launched at M.I.T. this fall to give freshmen a chance to begin their M.I.T. careers by participating in serious research projects with distinguished members of the Faculty. For both the freshmen and their instructors, these seminars were an educational experiment.

The topics included nuclear chemistry, physics, food supply, oceanography, biochemistry, music, crystal structure, company evolution, and the nervous system. And the work in these and other subjects was planned to take the freshmen into a variety of laboratories, libraries, offices, and industries.

Several of the instructors offering these seminars indicated that their objective would be to give the freshmen a clear conception of research. One proposed to start his group on a project in his laboratory and take them around the Institute to see similar research being done in other laboratories. Another assigned his students to doctoral projects that were already well along and arranged for them to sit in on meetings with graduate students. A third professor said his approach would be quite different: He planned to begin by discussing a few aspects of one of the regular freshman subjects, and strive to show his group how detailed science is and, at the same time, how interrelated its fields are.

Pictured above is the main maintenance console of **STRETCH**, a giant computer to be operated by C-E-I-R, Inc. Construction of the new home for it began this fall.

Two comments, in particular, reflected concern about the need to make it clear *why* something was being learned.

"I want to demonstrate," said one professor, "that any real engineering problem is tremendously complex. It is not similar to a freshman physics course where only a *principle* is illustrated and elucidated. . . . I hope that when a student gets into an area about which he knows very little, his reaction will be: 'I guess I'd better find out something about this.'"

Said another: "In college courses everything is tidy, and there is a built-in sequence. Hopefully this seminar will have some very untidy problems to work on".

The Kresge Roof Experiment

VISITORS to Kresge Auditorium this winter may notice that two corners of its roof have been re-covered in different ways: Lead plating has been applied to one corner and molded together by heating. Another corner has been re-covered with shingles made of copper and covered by a lead coating.

The whole dome will be attended to later on, because of the weathering of the original roof. But the choice of a new complete covering will not be made until the weather's effects have been observed on the two corners that were repaired differently last summer.

Learning Corps in Industry

We must take advantage of the homogeneity of skills and knowledge that modern technology has virtually imposed on most production

BY W. O. BAKER

Vice-president—Research, Bell Telephone Laboratories

THOMAS CARLYLE, in *Past and Present*, said: "My brother, the brave man has to give his life away. Give it, I advise thee;—thou dost not expect to *sell* thy life in an adequate manner? What price, for example, would content thee?"

The time has passed when man in our society can be said to have a life in industry. Indeed, considering the mobility of the American population, it would be better to speak, quasi-scientifically, of the half life of man in industry, but even that implies an involvement in the affairs of the worker which has been fading in the last decade. The factories of the industrial revolution, the mill towns of New England, and the industrial centers of the Midwest have certainly marked a period in which laborers, some engineers, and many managers committed much of their lives to—and were contained for much of their lives in—the industry itself. The sleek new electronics plants of Route 128, the Santa Monica strips, and the chemical and petrochemical complexes

along the Houston ship canal—even the great Morris Works of a steel company with its Levittown nearby—no longer capture any principal part of the lives of the individuals who work in them.

Symbolically, these plants are strung along great highways so that they are mere stopping points, not quite rest rooms or filling stations, but only shelters along the way, for a society whose inner life finds neither its sole sustenance nor major spiritual satisfactions in the assembly line, the construction gang, or the needle room. Of course the needle room and the construction gang still exist and offer opportunities for individual skills, and even kinesthetic satisfactions, that go with the exercise of such skills. But the direct interest of the worker in his handicraft is lessened and nothing has been developed yet within industry to fill the partial vacuum in his affairs. The intrusion of activities outside of the industry of the working man or the professional man is now so extensive that he no longer has what was char-

The early New England mill towns captured more of the lives of their workers than the sleek new plants along Route 128.



acteristic of advanced civilizations for about two centuries, namely, a life made by industry.*

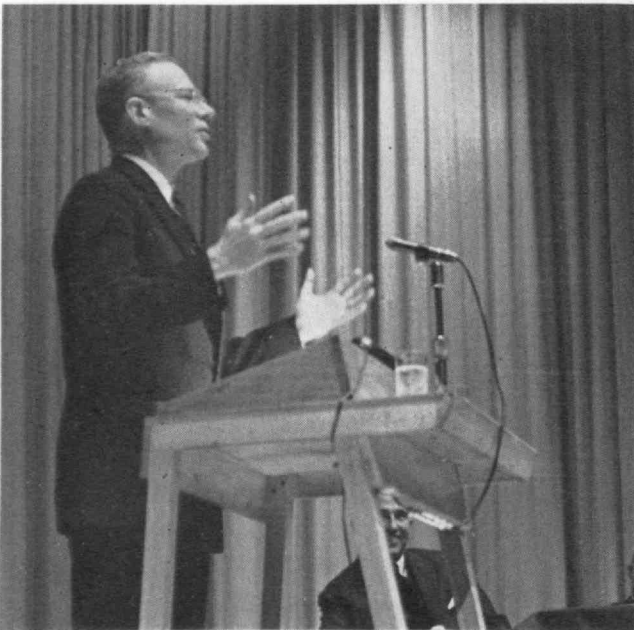
This theme is possibly shocking at a time when industry has pridefully accumulated an extraordinary range of amenities for its workers. These include good lighting, air conditioning, soft music, free luncheons, on-site athletics, etc. Industry did this under the sincere but outdated belief that people were going to live their lives in it. There is hardly more touching evidence of the anachronistic devotion of our social system to this theme than the law, of at least some states, that workers injured while playing softball or other games on company premises during the day are subject to Workmen's Compensation.

Managers and Union Leaders

In the face of this humanistic trend, I am forced to report I believe that to an increasing degree lives will not be lived in industry, or at least in the industrial circumstances we associate with factories, machinery, distribution systems, and the like. Oddly, there are two residual components of industrial society that seem to be only slowly aware of the detachment of workers' lives from the industries in which they work. These are the managers, particularly the executives, and the union leaders. Both of these large groups recognize too little of the dramatic flux of science and technology through industry. They have been slow to see that work in industry is no longer an activity demanding that lives be lived in its pursuit. Nor have they admitted yet that the specialization of the industrial worker is disappearing.

The triumph of using machines and, in these latter years, of the control of machines through servo-feedback electronics, communications, and information the-

* Thus, during these centuries, work in industry was an actual saving from want and starvation. For any individual, this is no longer true. Consider, too, the increase in Western man's life expectancy from 40 to 70 years during M.I.T.'s first century.



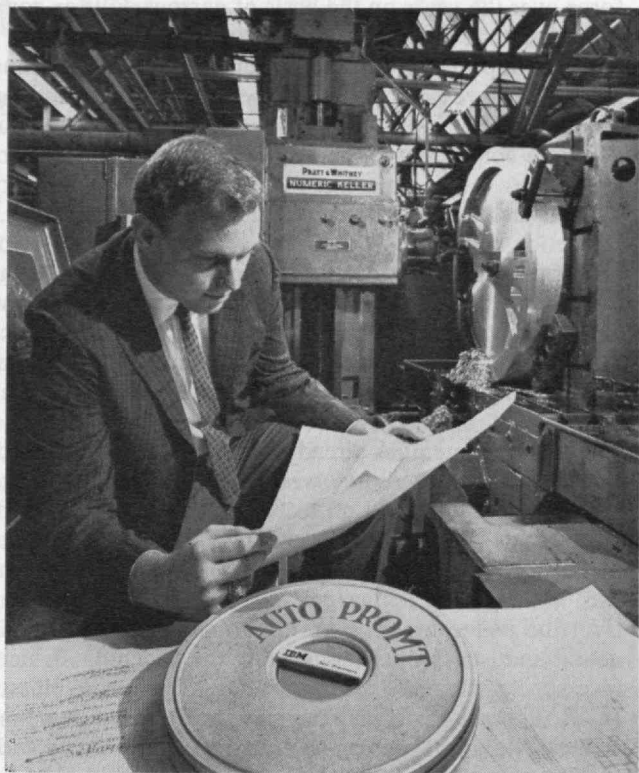
THIS ARTICLE was drawn from the remarks of Dr. Baker (above) in a panel discussion of "The Life of Man in Industry" during the M.I.T. Centennial. He is a member of the President's Science Advisory Committee.

ory, has made it possible to design the machine for the product that industry needs to turn out, instead of designing the man for its production. While this transition, astonishingly rapid as it has been, is obvious to engineers and certainly to sociologists throughout the Western world, it has been ignored or missed by many managers and union leaders. The managers, devoted and bound as they are to a particular product, and apparently tied to an annual profit (or, as in defense industries, to a tangible contract result), believe that human skills and energies specifically applicable to their operation must be purchased and developed. The union leaders, on the other hand, have long held the now archaic belief that the nature of the work which people do is the strongest tie to bind them together in their social interests, and thus that the industry of coal mining is quite separate from construction and road building, even though fundamentally the technologies are intimately joined.

Education and particularly its embodiments and its accessories, science and engineering, have played a major part in achieving a state in which man's life is fabulously enriched by results of industry but in which industry progressively requires less and less of his life in it. This is because machines, which started out to be only mechanical levers to extend the muscle and reach of man, are now subject to controls, mostly electrical controls, of such elegance and logic that, in general, man does not find his challenge, or even a measure of his worth, in his direct role in production. He does not have his handiwork in the automobile as the carriage maker did; he does not have his fingertips in the textile as the weaver and the spinner did; he does not have his eye and touch and sense of consistency in the plastic molding or the metal casting as his predecessors did. He does have his part in the control of the machines, but that part is an increasingly technical one, in which the skilled but nonprofessional worker finds his major satisfaction in *learning* and taking *training* for doing rather intricate maintenance and checking jobs.

He need not identify himself with the product much to do this and, accordingly, has no reason to feel that he is using his best talents and fulfilling his ambitions by turning out, specifically, better mouse traps, light bulbs, or rocking chairs. Rather, he may subconsciously think how his training and experience in control and machine operation prepare him for a much broader role. At least, they equip him to perform in almost any kind of industry wherein, with prophetic foresight, engineers long ago selected rather universal types of switches, push buttons, dials, gauges, and recorders. In the mind of the worker a shoe has very little resemblance to a television set (although the two occasionally meet in anger). The machines which make shoes and those which make the components for television receivers do have similar enough linkages with man through their dials, buttons, and switches, however, so that the worker, as he is trained and educated thinks less and less about his life in a particular industry or association with a particular product. He sees more and more how he is a truly interchangeable part, able to perform about as well in one place as another.

How devastating this must be to the product-devoted manager, to the industry-dedicated union leader, and certainly to that vast horde of the new business class—



The man's part in production is becoming more technical.

the service groups. For in sales, distribution, advertising, accounting, etc., one's life may well be in a particular business and be strongly centered in a particular product, but this cannot in our present sense be called a life in industry. So this large cleavage between the lives and loyalties of those who produce and those who sell and distribute—the one becoming more detached from industry and more universal in the application of his skills and ambitions, and the other becoming more and more specialized in being able to sell the advantages of one special kind of dishwasher or cough drop—is a striking result of science and technology.

The Steps Needed Now

If we accept this theme that science and technology are removing the differences between industries, detaching the worker from the product of his work, and imposing some form of the Universal Machine in between those two, then many steps ought to be taken soon to capitalize, in our culture and for our national welfare, on these circumstances. Most of these steps will involve some stage of education, of training, of learning so that, as a man's life grows out of industry, he will feel, nevertheless, that the principles of science and technology that led to the machines and methods of modern production also can lead to enriching his own understanding, even in the most modest form. The principles of levers, of gas laws, of heat transfer, of light generation and focus, and of basic electrical circuits, are surely within the mental grasp of most of mankind. Education has made a great start in relating these to man's life in industrialized technological society. We must now go farther in both education and in industry in teaching every man to feel how versatile his role can be in production.

The nucleus of all this would seem to be that the old notions of science and technology causing increased spe-

cialization in the labor forces, or at least preserving the old specialization, must be abandoned. Industry, by vigorous and imaginative teaching and training, must continue the presently improved secondary and college educations of workers so that, from board cutter to Board Chairman, they will be able—and know that they are able—to convert quickly and smoothly from one industry, one production, to another as the demands of the economy and national security require.

While nowadays, both domestically and globally, the gross national product of a nation is regarded as an important index of its strength, everyone realizes that this measure means something only when the goods and services that are produced give adequate answers to the most urgent demands of a particular time. A huge national output of horseshoes means little to our nation now, although it still may be very important to some other economies. The same thing has often been said of tail fins. Planned societies use progress in science and technology to increase the national product in certain, specified ways. We use such advances to meet the demands of a free market, operated by the profit motive, which is well suited to the ways of free men.

Somewhere in between these practices comes a situation resulting from international tensions and competition in which a free society has to be ready to convert its production capacities to provide specific elements of national strength. The significance of the 3 per cent per year increase in our real gross national product since 1929 is blurred by a large but unknown content of growth which may bear little on our race for international peace and leadership. But there is little doubt that no less than 0.8 per cent of this annual growth is due to increased employment. Do we see in that continuing increase in the labor resources of the nation a quality of flexibility, versatility, and modernity which we have all come to demand from new machines and methods in the same period? Have we recognized with proper foresight the depreciation of human resources operating in the rapidly changing technical environment of industry? Have we attempted earnestly to develop, with full appreciation of human qualities, the interchangeable man with anything like the talent we have devoted to the evolution of the interchangeable part?

Some economists would argue that we have done pretty well with this. Professor Robert M. Solow of M.I.T., for instance, reports that "the historical increase in the education of the labor force" is the basis for about 0.7 per cent of the total 3 per cent cited. This can be compared to estimates that 0.5 per cent of all the growth has come from actual advances in technical knowledge and improvements in production practices. Although it seems to me that the sizes of these two factors, which incidentally add up to about 40 per cent of the growth of the last three decades, are hard to identify separately, the combination of the education of the working force and the application of science and technology has clearly been a decisive factor in our growth. But this is not the point being made here: We are emphasizing that the quality of the gross national product in a free society must be made increasingly adjustable to the international demands on our country. This can be done by taking advantage of the homogeneity of skills and knowledge that modern technology has virtually imposed on most of industry.



Teaching machine breaks may some day rival coffee breaks.

This pervasive community of labor and engineering skills may also offer some answer to the call for action so stirringly expressed in Dr. Land's commencement address at M.I.T. in 1960, entitled "On Entering the Majestic Stage of the American Revolution." He contrasted the social differences between the overriding quest for excellence which we now support and the quest for perfection which, he said, "in the domain of the known could involve all of our millions of merely talented people and all of our tens of millions of merely competent people." I believe that the present and oncoming homogenization of knowledge and skills for the production of goods and services will permit us to afford education and training, from elementary school on through any industry, so that the bulk of our industrial force will be able to gain some measure of the cultural satisfactions that Dr. Land described.

The Excitement to be Caught

This will require, of course, some drastic changes by the two governing elements of an American industry, the union leader and the executive. The union boss of the International Brotherhood of Stemwinders will have to recognize that the training of workers in the elements of physical science, basic mathematics, and machine construction and automatic control, will soon cause them to lose interest in the allegedly unique qualities of the trade of stemwinding. More than that, it will make them lose any valid identification with a special art or craft. Similarly, the executive of production enterprises will have to recognize the astonishing mobility of the labor force which will result from this emphasis on training and education. He will have to stop thinking in terms of a limited specialized labor resource—and I am including foremen, engineers, and many other skilled elements in this. He will have to stop trying to hold his

force over the years on the basis of narrow skills or commitments to a particular kind of industry or product.

More importantly, the organizers of both industry and labor will have to arrange for the continuing education of all classes of industrial workers to keep up with what will be a continuing revolution of machines and control techniques. At no stage must it be implied in the factory what is daily implied in the sales department—that a perfection and end of knowledge about the product or process has been achieved. Rather, we must capture the excitement which our population now finds in the novelty of the television drama or even more in the space science and satellite experiment. We must capture that for monthly and yearly, if not daily, progress in the factory.

While the amenities already mentioned of canned music and recreation rooms were apparently designed to take the worker's mind off his work, other techniques of even greater appeal are in prospect which will attract his mind back to the subject, if not necessarily to the task itself. The teaching machine break may some day rival the coffee break. Our preliminary experiments in actual industrial operations with the teaching devices give special meaning to this. Taking off from Professor B. F. Skinner's studies, our investigation of teaching electricity and magnetism to craftsmen show that a wide section of our population is keenly interested in continuing to learn about the fundamentals of the physical world. Indeed, the successor result to that of the Hawthorne experiments, which showed that the workers responded vigorously to the study of their working practices, is the indication that they likewise respond to the study of their work.

So, let our schools and our industries take part in man's whole, bigger life by teaching, even if ever so modestly, through the universal language of science and technology. Why should not the methods shown by the Physical Science Study Committee, and the similar programs in mathematics, biology, and chemistry, be applied? Already, of our 65 million jobholders, only 7 per cent are "laborers." Of industrial classes, craftsmen and foremen are 20.1 per cent and machine operatives 20 per cent, with professional and technical people already nearly 10 per cent.† Already, there are opportunities enough in this population to bring forth able, intelligent, and willing recruits to a study and learning corps.

Let education and industry learn to employ at all levels the workers' minds, in a continuing study based on the simple principles of science and technology. Our faith in the basic aspirations of most men will carry us through a transition period, past the "boondoggle," "wasted-time" stage, into an era of versatility, of real mobility so that the labor force of industry can keep pace with automation and technical growth. A decade before M.I.T. was founded, Cardinal Newman wrote of still other benefits of the course we propose, the humanizing effects: "Hence physical science generally, in all its departments, in bringing before us the exuberant riches and resources, yet the orderly course, of the universe, elevates and excites the student, and at first, I may say, almost takes away his breath, while in time it exercises a tranquilizing influence upon him."

† Managers, sales and service workers, clerical, and farmers make up the remaining 43 per cent—and they are not uninterested in the nature of the physical world.

Rocketeers Win Prize for Safe New Fuel

Two Cambridge students, Franklin J. Kosdon, '63, of M.I.T. and Ronald H. Winston of Harvard, received the American Rocket Society Undergraduate Student Award this fall for their original paper on a new technique for making and casting a solid rocket propellant. The fuel is the first that is safe and can be made easily available for use by amateur rocketeers.

Producing one's own fuels, as amateurs have often done, can be a dangerous and inefficient procedure. The propellant developed by the M.I.T. and Harvard men combines desirable physical properties—high specific impulse, relatively constant pressure, and predictable performance—with characteristics that make it safe and easy for amateurs to use.

The \$1,000 American Rocket Society Award, donated by the Chrysler Corporation, was won in 1957 by J. Reece Roth, '59. This year it was presented on Space Education Day during a week-long "Space Flight Report to the Nation" arranged by the society in New York. Senator Jacob Javits of New York, officials of the rocket society, and about 500 students and teachers attended the presentation luncheon.

The winning paper by Kosdon and Winston was entitled "Experimental Development of an Isocyanate Solid Propellant," and gave their evaluation of a propellant mixture with improved casting characteristics. Kosdon is a physics student and Winston is majoring in English but has a good background in chemistry. Together they found an organic chemical that would produce a rubbery solid propellant.

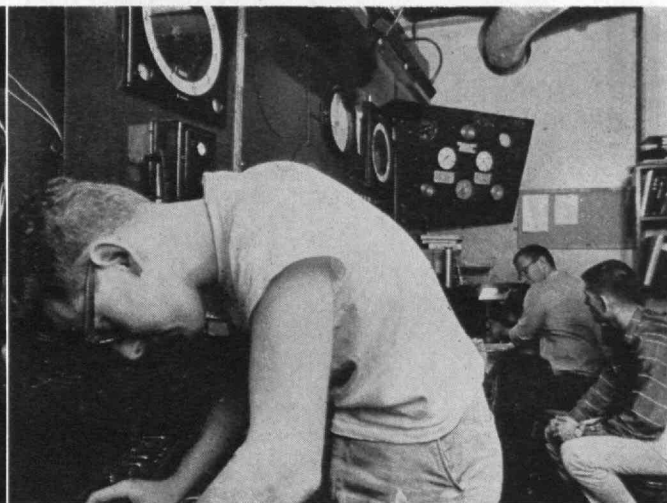
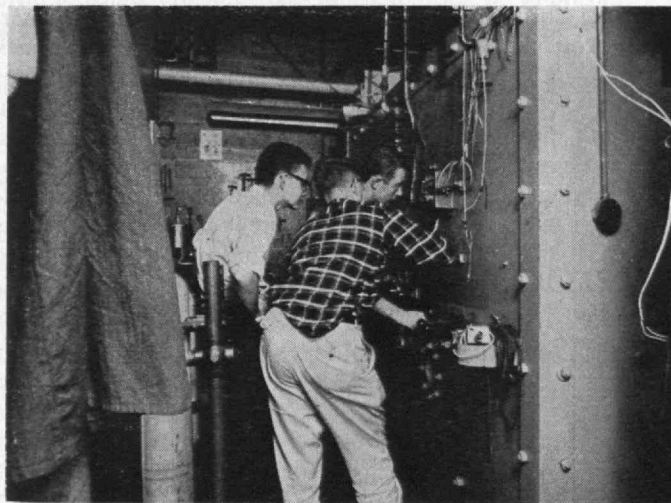
Both young men became seriously interested in rocketry when the Russians launched Sputnik I. "I got angry and very interested," says Winston. Kosdon, the son of a lawyer in Ventura, Calif., won an honorable mention for a Science Fair exhibit of a rocket capable of sending a mouse 42,000 feet into space. Winston, whose father is in the industrial diamond business in New York, helped his father and worked in his home laboratory before coming to Cambridge.



R. Winston (left) and F. Kosdon, '63, testing a fuel.

They met as freshmen and began their collaborative effort to develop their solid propellant fuel a year ago, working nights in the basement laboratory of the M.I.T. Rocket Research Society. Using its static firing facilities, they could measure and record very accurately the chamber pressure and thrust. They carried out an extensive static firing series—137 in all—and had no failures in 40 firings of the final fuel formulation.

They did not decide until mid-June to enter the American Rocket Society competition. The deadline was July 1 and they were 3,000 miles apart, but by sending material back and forth across the continent they produced a 33-page paper that was hailed as "the best paper written by any undergraduate concerning the art of rocketry."



Two sides of the test cell during a static firing by student members of the Rocket Research Society at M.I.T.

Krakatau Revisited

The danger of another eruption like the one in 1883 appears to be remote despite spectacular explosions in the last decade

BY ROBERT W. DECKER, '49

Professor of Geology, Dartmouth College



In new activity in January, 1960, Anak Krakatau sent gas and ash from 1,000 to 3,000 feet into the air repeatedly.

IN THE Straits of Sunda, at 10:00 A.M., on August 27, 1883, after a day of several large preliminary blasts, the volcanic island group of Krakatau unleashed nature's largest well-documented explosion. Fine debris was lifted 50 miles above the islands on the huge expanding gas cloud. The detonation was heard in Australia, more than 2,000 miles away, and the shock wave registered on barographs around the world. Measurable amounts of debris fell over an area of 300,000 square miles, and the dust that was carried high into the atmosphere encircled the equatorial regions of the earth by September 9.

The circuits of dust in the high-speed, high-altitude equatorial easterlies gave meteorologists an early clue to winds that they were unable to measure directly for another 50 years. Arms of the dust spread both north and south, and nearly the entire habitable world witnessed strange and beautiful atmospheric phenomena during the fall and winter of 1883. Perhaps the sunsets were the most beautiful, and Victorian artists and poets recorded them for our imaginations.

*Had the fierce ashes of some fiery peak
Been hurled so high they ranged about the globe?
For day by day, thro' many a blood-red eve,
The wrathful sunset glared . . .*

TENNYSON

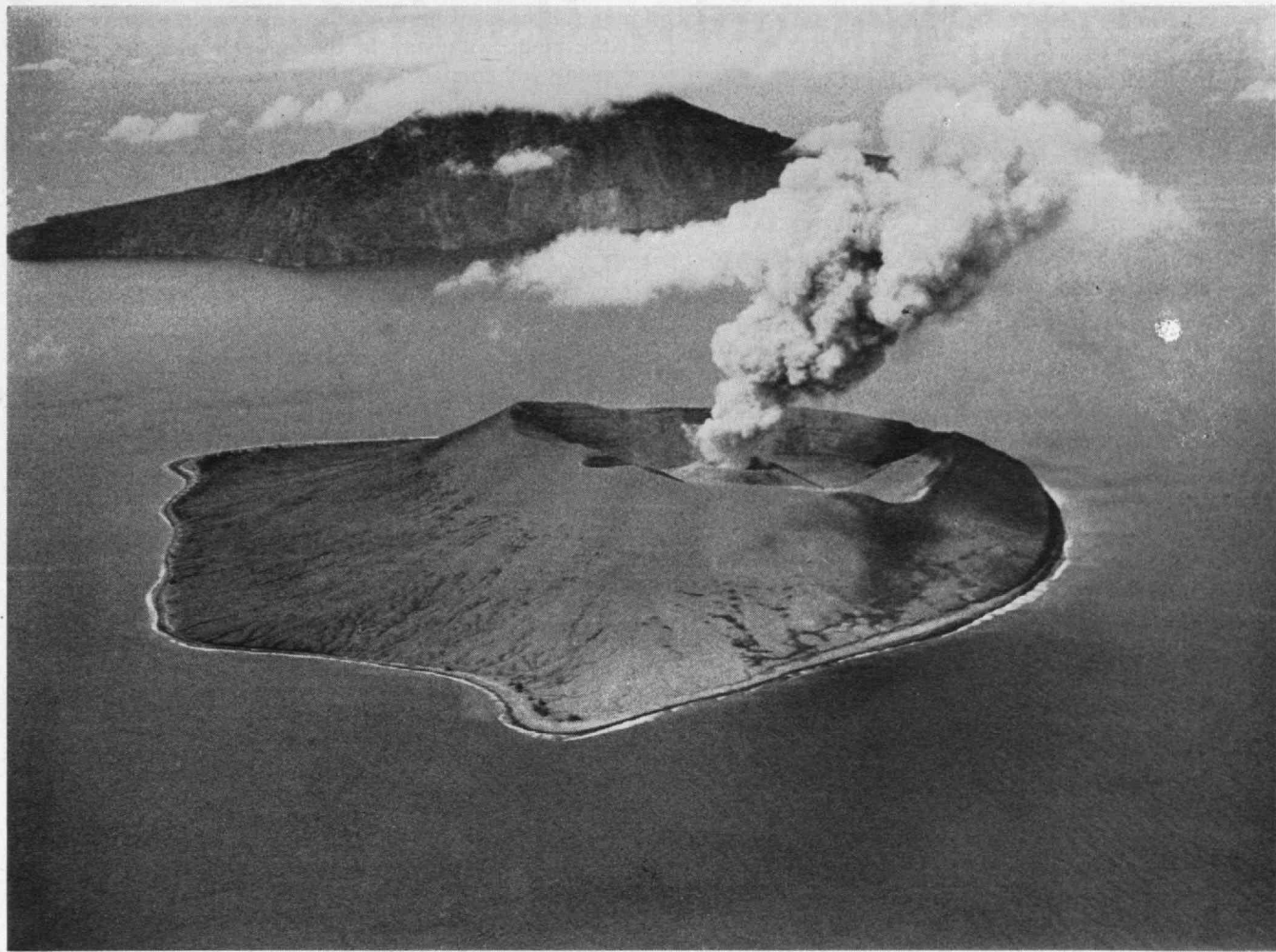
Wrathful indeed had that been radioactive dust!

Krakatau was fortunately a group of uninhabited islands, but the great explosion was not without catastrophe. Large tsunamis or tidal waves, related to the apparent collapse of the volcano into the void evacuated by the great eruptions, circled outward from the islands and reached the shallow shores of the Straits of Sunda from one-half to one hour after the explosion. Depending on the shape of the shore line, these great waves built up to heights of over 100 feet, swept inland as far as 15 miles over the flat coastal plains, and killed 36,000 residents of Java and Sumatra in a matter of minutes.

The missing part of Krakatau was five miles long and two to three miles wide. Where a peak once stood 1,500 feet above the sea, there is now a hole in the sea floor more than 800 feet deep! It has often been said that Krakatau "blew its top." But the 18 cubic kilometers of erupted material was largely pumice, a frothy natural glass so full of gas bubble holes that it floats on water. It choked the Straits of Sunda like a great ice pack for weeks after the eruption. The missing island was built of more dense lava of different composition. Both the new rock material and the great tsunamis are best explained by a collapse of the volcano into an underlying evacuated chamber which once held the molten, gas-charged rock. Similar great circular depressions are found in other volcanic regions and many of these *calderas* are thought to be of collapse origin. Crater Lake, Oregon, is one of the most beautiful and well-known examples.



Quiet returned to Krakatau as it had for 200 years before the 1883 disaster, but in 1927 a new series of eruptions began from the submerged rim of the 1883 caldera. By 1930 the new volcano reached the surface



The new volcano is a mile wide, 500 feet high. Rakata Island, in background, is remnant of the eruption and collapse in 1883.

of the sea and a new island, Anak Krakatau (child of Krakatau), was born. This new volcanic cone is built entirely of solid ejecta. Instead of molten lava spewing forth from the crater, molten rock solidifies below the surface and is blown out by gas pressure. This type of volcano grows like a giant anthill. The loose, porous material is easily eroded by sea waves and currents in an island setting, and Anak Krakatau has wavered between growth and destruction through alternations of eruption and erosion. The latest periods of important activity were in 1953 and 1960.

The 1960 activity was sufficiently strong to refresh memories of the 1883 disaster, and the Indonesian government sponsored an expedition to the islands to gather new scientific data and to ascertain, perhaps, the danger of any future caldera collapse. In the 1883 disaster and in the geologic remains of a similar prehistoric collapse at Krakatau, there is a definite sequence of compositional change in the erupted rocks, beginning with lack of silica in the early eruption and growth stages and ending with excess silica in the pumice eruptions of the caldera collapse. The present eruption products of Anak Krakatau are still basalts which lack free silica. So, on this criteria, there seems little danger of a new catastrophe in the near or foreseeable future. Although spectacular at close range, the recent eruptions of Anak Krakatau are relatively harmless.

Explosions of steam occurred 30 seconds to 10 minutes during two days that the writer was on the island.

These would form mushroom clouds turbulently rising from 1,000 to 3,000 feet above the crater and heavily laden with volcanic ash and cinders. During the larger explosions, showers of hot, solidified lava blocks, up to several feet in diameter, landed nearly 2,000 feet from the vent. A new map revealed that Anak Krakatau has grown to one mile in diameter and a height of 500 feet. The high point is on the rim of an outer crater nearly 2,000 feet in diameter, and the recent explosive eruptions have produced a new cinder cone inside the older crater. The volume of the island is 0.3 cubic kilometers and continued growth similar to that in the last 30 years will rebuild it to its 1883 volume in about 600 years.



With the aid of a seismograph the depth of the 1960 explosions was found to be roughly from 600 to 700 feet below sea level. From this starting point the exploding gases, largely steam, would take 15 to 25 seconds to churn their way upward through the loose material choking the vent before breaking out at the surface and forming the turbulent explosion clouds. The black, ash-laden clouds would rise rapidly, often laced with lightning bolts generated by the static electricity of the moving particles, until the expanding gases reached temperature and pressure equilibrium with the atmosphere.

(Concluded on page 50)

Talk of Our Times

What Mineral Engineering Needs

At a meeting of the Natural Resources Committee of the National Academy of Sciences last fall, PROFESSOR A. M. GAUDIN of M.I.T. called attention to problems in mineral engineering that require study, and asked: Who will do it? Professor Gaudin said in part:

RESEARCH in mineral engineering must go all the way to practical utilization of the idea. The day-to-day grind is often monotonous, and does not stand up well in young men's minds with the thrill of first trapping a strange particle or setting up some new mathematical observation that, the student is told, will revolutionize men's ways. This is the philosophical handicap that the mineral engineer meets when he tries to gain young recruits.

The competition for young people is made more severe by the practical test of the ads in the newspapers which play up, unwittingly no doubt, the advantages that will accrue to one who follows exotic material in the realm of outer space.

No one in his right mind will dispute the importance of these new areas of activity, and I do not propose to do so. It will suffice for me to bring to your attention that this year out of some 60 students admitted to the Graduate School in the Department of Metallurgy at M.I.T. there was not a single American seeking to perfect himself in mineral engineering, and there were only three or four in extractive metallurgy.

Part of the responsibility for this lies in the companies that excel in mineral processing and the extraction of metals. They have awakened only recently to the need for research personnel in their field. Fifty years of deliberate ignorance take more than a few years to correct. And yet correct it we must, as I became convinced after a trip to the U.S.S.R.

I visited eight institutes there dealing with metallurgy, coal beneficiation, geochemistry, mineral engineering and mining. Each was many times larger than its U.S. counterpart. At the Moscow Institute for Rare Metals and Gold, some 500 metallurgists, specialists in the narrow range of rare metals and gold, are graduated yearly. Quarters are not too good, but the spirit is there, and the curriculum—five years—equals that for the master's degree at the best U.S. schools. In Leningrad, at the Institute Makhanoobr, dealing exclusively with ore-treatment problems of ferrous metals, there were some 1,600 employees. Their numbers were increasing, new quarters were being built, and new institutions in western Asia and the Ukraine spun off.

We have a big personnel problem building up in this country, and the situation will become worse before it becomes better. Despite the lack of good American students in mineral engineering, I find the business administration field well staffed with would-be Presidents and Chairmen of the Board, who have Boston, New York or San Francisco as preferred locations, and who are willing to have a very brief brush with mineral

problems—so, no doubt, as to be able to boss around the clods who stay in the mineral field. And I find plenty of foreigners wishing to become proficient in mineral engineering: Germans, Austrians, Frenchmen, Hindus, Chinese, Japanese. And also, thank goodness, some Canadians.

This situation could be corrected, not overnight, but in five to 10 years, by taking a leaf from the Russian book. They have placed the incentive of a better future before the younger generation. Each man on reaching college age is automatically employed, and paid. He goes to work in a factory *unless* he has been admitted to college. If he has been admitted, he is paid, at about the same rate as an apprentice in, say, a machine shop. Each year brings him a raise in pay until his graduation, when the first big step forward occurs. If a student fails, he goes back to laboring for a year or more. With such a system there is no dearth of applicants for "positions" as students in a college.

What I propose is the creation of research fellowships for men who have already earned their doctorates, at competitive rates of pay, and for sufficient time, say four years, for each fellow to do something worthwhile. Even if we were to allow \$25,000 per man per year, as an all-inclusive cost figure, this, on the basis of a thousand men per year would only cost \$25 million, or less than a submarine. On the basis of 400 men per year the cost would remain in the range of \$10 million, a paltry sum, indeed, when the stakes are duly examined. And the stakes include pre-eminence of the United States in the mineral field. . . .

Mineral engineering research problems abound. We need, however, a general national awakening to the reality of those problems.

Science Vs. Magic

Administrators who are not technically trained still often confuse science with magic, GEORGE E. VALLEY, JR., '35, Professor of Physics at M.I.T., told the Air Force Association at its convention this year in Philadelphia. Professor Valley called attention to seven characteristics of science and technology that differ from those of magic:

1) NO FACT of science or product of technology, however it may be classified, can be known to but a single man.

2) The benefits of science and technology can accrue to any one of us only through the co-operation of many people.

3) The benefits of technology can accrue to a particular person not simply because he is that person but because he is enabled to place himself physically in position to receive those benefits.

4) The devices of technology are fallible, sometimes they need repair.

5) The knowledge and the predictions of science are never perfect, perfection being regarded as an approachable but unattainable limit.

6) Technological devices unlike magical ones neither protect their users from harm nor do they necessarily cause harm to people.

7) From science and technology you do not always get what you want; all you can have is what men know how to make possible from their always imperfect understanding of nature.

Instrumentation Developments and the Potential of Nations

Integration of the wealth of material available about methods, to make it manageable, is the objective of work now under way

BY KURT S. LION

THE NATIONAL POTENTIAL of a country includes more than its ability to produce raw materials and consumer goods, to provide and maintain public safety, and to protect its population from internal and external enemies. A nation also has a cultural potential when promotion of the sciences and the arts is a part of the national mission.

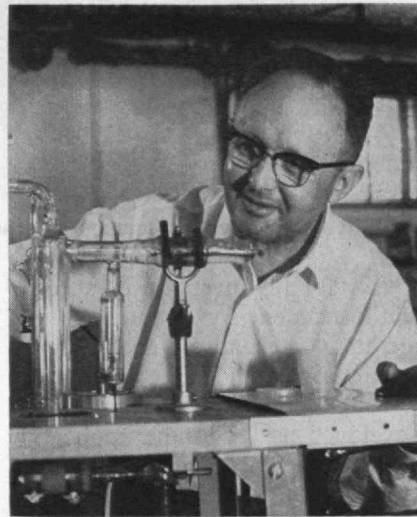
Nations differ considerably in the pattern of topics that form a national mission. Sometimes lately, the potential of a nation has been equated with the ability to put a man on the moon. Such a feat, however, represents but a small part of the potential of a nation, a part with a significance that must be judged on the basis of its priority, its economic sanity, and its publicity value.

For many countries the scientific potential is an important part of the national mission. In the Western nations the discovery of a new subatomic particle, or the invention of a bubble chamber for studying nuclear fragments, is considered a national accomplishment. Science has laid the groundwork for the economic development of these countries and has increased their production potential and their potential ability to safeguard their people.

The discovery of polio vaccine has been celebrated as a national accomplishment even more than any discovery in physics or chemistry. When an anthropologist, in the years to come, studies "the American way of life," he will probably find that the social prestige of the medical research worker exceeds that of any other research worker, entertainer, or sports hero.

The influence of the scientific potential of a nation is probably greatest, nevertheless, in its military ap-

DR. LION, who is shown at the right working in the basement shop he has in his home in Belmont, is associate professor of applied biophysics at M.I.T. This article is a condensation of a lecture he prepared for an Instrument-Automation Conference in Los Angeles last fall, and is published with the permission of Herbert S. Kindler, '48, Director of Technical and Educational Services of the Instrument Society of America. Professor Lion will help give a short course in Measurement Engineering at Arizona State University next January 29 to February 2 and also is scheduled to teach instrumentation in Mexico City next spring.



plications, and many countries feel forced to spend considerable sums to increase their scientific potential because of their need for defense. Sovereigns and commanders of military forces, at all times, have employed technical experts, and technical experts have frequently earned their living by working on military projects. Well known, for instance, is an "unsolicited proposal" that Leonardo da Vinci submitted in 1482 to the Duke Ludovico Sforza in which he proposed to develop portable bridges, ballistic machines, and other military equipment. Only at the end of his proposal did he mention that he would like to build a beautiful bronze horse.

Instrumentation's Role

Research in the natural sciences depends critically upon instruments and methods. When a new idea is conceived, it is tested by experimental means; a method is worked out, and the necessary instrumentation is procured or, in many instances, newly developed.

Many scientific investigations which at the time of their publication were considered pure science later have become the basis for instrumentation topics. The classical investigations by Langmuir, Schottky, and others on the emission of electrons from metals, for example, was the basis for the development of that very important contribution to instrumentation, the electronic amplifier.

The scientific world has long acknowledged the equality of instrumentation and pure science. Of all Nobel prizes awarded to physicists and chemists, more than 50 per cent have been awarded for accomplishments in instrumentation. In 1960, the Nobel prize in chemistry was won by Libby for the development of a method for determining the age of organic materials by measuring the radioactivity of the carbon isotope C^{14} , and the Nobel prize in physics went to Glaser for the invention of the bubble chamber. Similarly, the 1959 Nobel prize in chemistry went to Jaroslaw Hey-



Such items as coffee still manage to evade thorough evaluation by instruments . . .

rovsky for his invention of an electric instrument for quantitative and qualitative chemical analysis, the polarograph.

Some industries are now highly developed as far as the application of instrumental methods are concerned; these include the electronics, petroleum, electrical power, and business-machine industries. But there are others that still rely relatively little on instruments and instrumental methods; these include the food, the leather, and, to some extent, the textile industries.

This may be understandable, not only on an historical basis, but more so because primary transducers for many aspects of these industries do not exist. Taste and smell, for instance, have always been physically evasive qualities, and the quality of such items as beer, soluble coffee, butter, perfume, etc., still is evaluated by human testers. There are efforts that may lead to transducer developments in taste and smell measurements—such as gas chromatography and ionization chamber gas detectors, systems that are capable of detecting a concentration of certain gases by only one part in 10^{14} —but the technical difficulties are considerable and the applications are, as yet, uncertain.

Automation now is one of the most challenging fields in instrumentation, and it frequently requires the development of new

transducer systems. The control of the dynamic behavior of automation systems often requires great mathematical and experimental skill and not infrequently the use of computers and analog models. But the rewards can be high; increased production potential and less costly consumer goods can be expected, along with a shifting of labor from monotonous low-grade work to intellectually higher, and probably better paid, activity.

The influence of instrumentation in biology and medicine is growing, too, at an accelerated rate. The greatest need for instrumentation is found, of course, in medical research, but potential applications of instrumentation may exist also in connection with the diagnosis and the treatment of diseases. An inspection of the program of the last international conference on medical electronics shows a wide variety of topics in the borderline field of instrumentation and biology.

Special techniques, in particular instrumental systems that give information about chemical and biochemical processes in living matter, may be of particular importance in future biological research; these include potentiometric, polarographic and conductimetric systems, systems of chromatography and gas chromatography, and such detecting systems as the ionization chamber, the thermal conductivity chamber, and

similar transducers. Spectrophotometry, particularly in the infrared region, has contributed considerably to the biological research potential, and the influence of the mass spectrograph and of the magnetic resonance spectrograph is still rising.

Now, too, a different type of instrumentation, the methods developed in the fields of communication and computer technology, is gaining ground in biological and medical research. Small signals of biological significance in the presence of high-level noise pose problems which instrumentation can solve. But the difficulties are considerable and instrumentation systems of high complexity may be needed to compete with humans.

An example of this type of problem is the measurement of the heartbeat of the human fetus in the presence of the heartbeat of the mother and other noise sources. The skilled human observer can easily separate the desired signal from the noise level that exceeds the signal by orders of magnitude. To do this, he correlates the meager information he obtains from his stethoscope with the expected signal or signals that he has stored in his brain. A substantial, complex instrumentation development will be required to compete successfully with this subjective method.

Endoradiosondes, that is, miniaturized telemetering systems that are borne without discomfort or disturbance by the experimental animal or human being, have furnished information of great value and are likely to be more important in the future. The field of bionics, which is primarily concerned with the creation of instrumental systems that closely resemble biological systems, also has reported some remarkable successes and more can be expected.

Integration and Education

The greatest field for the application of instrumentation today, however, is still that of military technology. One can be familiar with only a small sector of this work. It may be regrettable that the enormous amount of ingenuity displayed in the field of military instrumentation is presently available for purposes of defense only, but there is justifiable hope that this ingenuity will serve other purposes as well.

(Concluded on page 52)

An Electrical Search May Aid Archaeologists

*Exploration of the Paris of the
ancient world will be continued*

THE CAPITAL of the Lydian empire in the time of Croesus, and the Paris of the ancient world for many years, was Sardis in western Turkey. For four summers, Harvard and Cornell archaeologists have been working there.

Radioactive dating, electron microbeam probing, and other new techniques can be employed to determine the age and composition of their discoveries. But archaeologists still are frequently uncertain where to dig, and this year David Greenewalt, '60, of M.I.T. joined the explorers of Sardis to see whether a geophysical technique could be employed to reduce the danger of digging in the wrong places. He will return to Turkey next summer to continue the investigation.

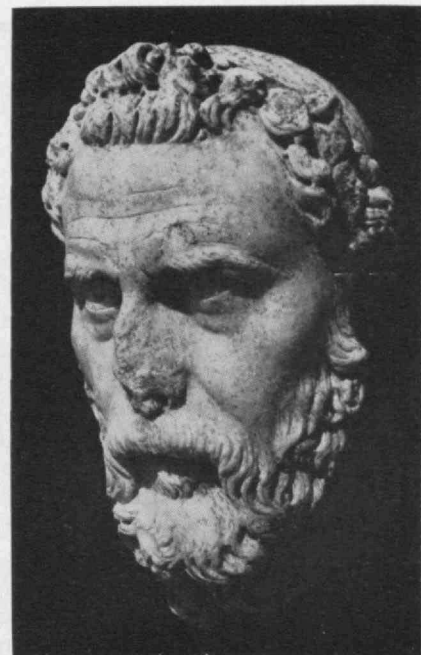
The archaeologists are especially interested now in some large burial mounds about five miles north of

The marble "soul portrait" at right was found in the debris over the main avenue of Sardis by the Harvard-Cornell expedition last summer.

Sardis. Grave robbers have opened a few stonework tunnels leading from the edges of these mounds to small burial chambers. If more such tunnels can be found, the excavators can proceed more surely.

Geophysicists developed a resistivity test about 40 years ago which sometimes is helpful in locating large deposits of ore. Electrodes are placed in the ground, small currents sent through them, and the voltages read. A change in the resistance between a pair of electrodes may indicate the presence of a deposit of metallic ore.

This technique also may help locate buried structures. If the ground, or fill, in a given area is



reasonably uniform, a buried stone building or wall may change resistance to an electric current. By taking enough readings, a pattern may emerge to guide excavators.

University of Pennsylvania searchers used this method in Mexico in 1960. It also has been employed in Italy. When conditions were favorable, it has been possible to trace underground walls this way, but not all of the experiments have been successful.

The technique is most helpful where there is homogeneous fill and where there are high contrasts in resistivity between the object being sought and the surrounding material. Archaeologists are intrigued by the technique in many areas because the equipment can be carried in a suitcase, and the tests can be made quickly and inexpensively. Professor George M. A. Hanfmann of Harvard, one of the leaders of the Harvard-Cornell expeditions, hopes it can be helpful in Turkey.

Last summer the expedition uncovered the grand shopping street of Sardis and found colorful mosaic flooring laid by the Romans in the Fourth Century A.D. Many unusual works of art were found, too. These included a delicately adorned gold bead in the tomb of a lady who lived in 600 B.C., the century of the father of Croesus; and a "soul portrait" of an unknown saint or sage which Professor Hanfmann says "well expresses the spirit of transition from the Roman to the Christian world."



This Late Roman (Fourth Century A.D.) mosaic floor in a villa in Sardis was uncovered last summer. The excavators will resume work in the area next year.

Institute Yesteryears

25 Years Ago . . .

IN DECEMBER, 1936, Karl T. Compton, President of the Institute, delivered his valedictory as President of the American Association for the Advancement of Science. His subject was "The Electron," and he said in part:

"The history of science abounds with instances when a new concept or discovery has led to tremendous advances into vast new fields of knowledge and art whose very existence had hitherto been unsuspected. The discoveries of Galileo, Faraday, and Pasteur are such instances. But, to my notion, no such instance has been so dramatic as the discovery of the electron, the tiniest thing in the universe, which within our generation has transformed a stagnant science of physics, a descriptive science of chemistry, and a sterile science of astronomy into dynamically developing sciences fraught with intellectual adventure, interrelating interpretations, and practical values.

"I take particular pleasure in mentioning these practical values, for even the most unimaginative and short-sighted, hard-headed, 'practical' businessman is forced to admit the justification for the pure research—of no preconceived practical use whatsoever in the minds of those who led in its prosecution and of all degrees of success and significance—which has been directed at the electron.

"For out of this research have come the following things which all can understand and appreciate: a growing business in manufacture of electronic devices which now amounts to 50 million dollars a year in America alone; a total business of some hundreds of million dollars a year which is made possible by those electronic devices; innumerable aids to health, safety, and convenience; and an immense advance in our knowledge of the universe in which we live."

¶ Congratulations were being extended to Charles Camsell, '09, on his appointment as Canada's Deputy Minister of Mines and Natural Resources; to Oscar C. Merrill, '05, elected Vice-president of the World Power Conference; and to Charles Edison, '13, upon becoming Assistant Secretary of the Navy.

50 Years Ago . . .

THE REVIEW reported that, "on Tuesday evening, December 26, [1911], the Cambridge Common Council removed the last serious obstacle that stood in the way of the Institute locating in that city on the contemplated Esplanade site . . . by accepting the report of the Committee on Highways which recommended the closing of Amherst Street . . .

"Although it was generally expected that this would be the final outcome of the matter, nevertheless, from rumors that have been afloat, it seemed not at all unlikely that it might be delayed for a considerable period, and the final action of the Council was . . . heartily approved by the citizens of Greater Boston."

¶ "Although the sophomores as a body ceased paying unappreciated attentions to the freshmen on the night of the freshman dinner, several years ago," the editor of *The Review* observed that "there has been an annual skirmish of yearly diminishing importance which has generally resulted in the ducking of two or three sophomores in the Frog Pond on the Common. This fall, the sophomores of the Class of 1914 decided to put an absolute stop to this child's play and the freshmen were unmolested at their dinner."

The decision prompted favorable comment in the press and certain magazines such as the *Journal of Education*, which reacted as follows: "The attitude . . . is one that is worthy of commendation as a step on the part of a college where 'efficiency' is the watchword against the silly and useless combats between the entering class and those already in the college. For a number of years the student body, which here more than in any other institution takes the initiative in matters of change or reform, has been struck by the folly of the older custom, and, one after another, objectionable practices have been dropped from the list.

"Formerly the night following 'Freshman Dinner' saw a free fight, long continued on the grounds about the athletic field in Brookline, which was among the most sanguinary of any of these college class clashes which popularly attach the adjective 'bloody' to the day of their customary occurrence. . . ."

75 Years Ago . . .

PRESIDENT FRANCIS AMASA WALKER, in his Annual Report dated December 8, 1886, wrote: "More and more painfully, from year to year, we feel the need of large permanent endowments, to increase the present usefulness, and to secure the future, of the Institute. No school in the land is undertaking to do a work so large as ours, without twice, thrice, or four times our invested means. . . .

"I am speaking in no spirit of complaint or censure. . . . Nor is it a subject altogether of regret, that in the past we have been somewhat pinched for means. The early growth of the Institute may not inconceivably have been sounder and firmer, because slow and painful. But I think no one can know much of this school without having a strong conviction that the full time has now come, when it requires for its greatest usefulness, for the maintenance of its high character among the scientific institutions of the world, and for its security against disaster and business depression, large, very large, additions to its permanent investments."

¶ *Technique 1888*, the second number of that annual volume, "appeared on the morning of the 23rd, and within 15 minutes the first lot of 360 were sold out," according to *The Tech*, which declared itself "as a whole . . . very much pleased with the work, and [considered] it a credit alike to its editors, the Class of '88, and the whole Institute."

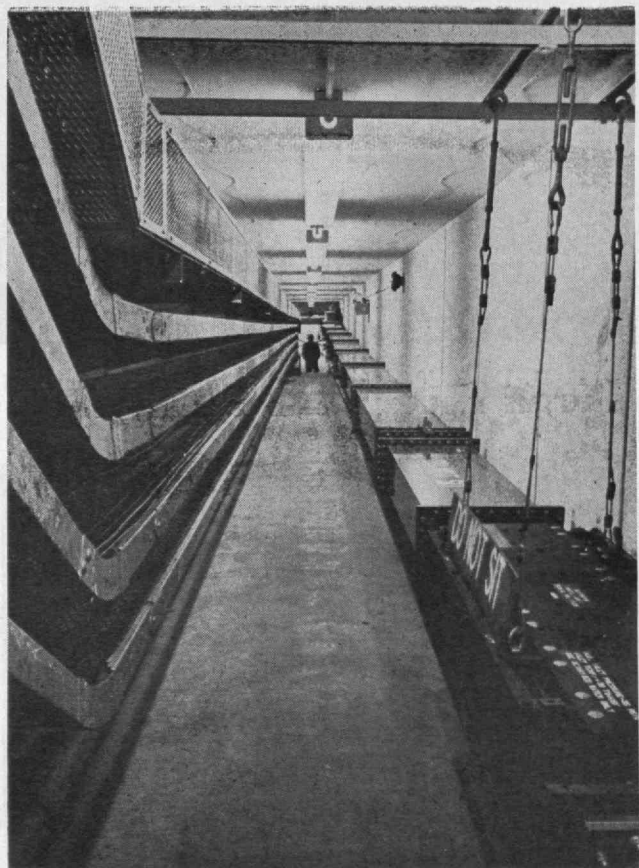
¶ The twelfth Annual Meeting and Dinner of the Alumni Association was held at Young's Hotel on Tuesday, December 28, 1886, about 40 members being present. The report of the Secretary and Treasurer was read, showing a balance on hand of \$54.06. The Alumni Fund amounted to \$1,174.75.



The Soon to Be Completed Electron Accelerator

THE M.I.T.-Harvard six-billion-electron-volt accelerator will put electrons to new uses when it goes into operation shortly. (See *President Compton's remarks* 25

years ago on the preceding page.) This view is from Andover Hall of the Divinity School. The big ring of magnets and other key parts of the device are underground.



Radial tunnels carry magnet power conductors, signal and control cables, and the feeder for the r.f. system.



Prof. M. Stanley Livingston and William Holland (right) facing an r.f. cavity. The wave guide is above the magnet.



In New York

More than 400 turned out for National Alumni Night. At the head table directly behind the lectern is A. E. Perlman, '23; and at his left, C. G. Dandrow, '22.



In Detroit

Left to right: C. L. Tuller, '12, F. H. Davis, '04, T. K. Hine, '16, P. C. Baker, '16, J. E. Longyear, '26, J. M. Campbell, '25, H. H. Kehrl, '60, D. B. Martin, '25.



Los Angeles

Nearly 200 attended the Los Angeles meeting. Standing in rear is Ray Stringfield, '15; seated at his left is Second Century Fund Chairman John J. Wilson, '29.

Technology's Voices Cross the Continent

The Institute's Alumni hear a message from the Second Century Fund's leader bounced off the moon—and a few words from DAVO

THOUSANDS of Alumni, meeting in 46 cities on National Alumni Night, October 19, heard "The Voices of Technology" telephoned from Cambridge. Philip H. Peters, '37, introduced them, and the first speaker was Mrs. Karl T. Compton acknowledging "our incalculable debt to all those minds throughout the ages who have extended knowledge or have deepened our understanding of ageless values." President John F. Kennedy and Prime Ministers Winston Churchill and Harold Macmillan were then heard speaking at Institute gatherings, and their voices were followed by those of many of the best-known members of the Institute's Faculty and staff.

Speaking from New York, Chairman James R. Killian, Jr., '26, of the Corporation, reported that \$44,000,000 of the \$66,000,000 being sought for the Institute's Second Century Fund had been pledged. M.I.T., he emphasized, is an institution observed and copied the world around, which can serve as a great lever to aid in meeting our national goals. "We must permit no obsolescence, no lack of energy, or no financial limitations to prevent us

from maintaining and enhancing our leadership," he declared.

Speaking from Boston, President Julius A. Stratton, '23, summed up the Institute's immediate hopes and needs in these words:

"First, to enrich the opportunities for education and to develop quality at every level and in every area . . . Second, to press forward in critical new fields through research and to relate research to teaching. . . Third, to add to the total educational experience of the student on this campus, and so to contribute to the development of character, judgment, and perspective of each as an individual."

These, he added, "are large and ambitious goals," toward which the Institute is moving "with a conviction of their urgent importance."

From the Pacific Coast, the voice of John J. Wilson, '29, general chairman of the Second Century Fund, was beamed at the moon and reflected back to Massachusetts to be sent throughout the continent. "The sum of the generosity of each one of us in both time and money," he observed, "must be sufficient to prove overwhelmingly that our Alumni will do more than their

share in making it possible for this great institution to meet her growing responsibilities to our country and, indeed, to the rest of the world."

Earlier in the program, the Alumni heard Vannevar Bush, '16, reading an excerpt from his famous essay, *The Builders**; Professor Samuel C. Prescott, '94, recalling his days as a freshman 71 years ago; Professor Jerome C. Hunsaker, '12, reminiscing about the beginning of education in aeronautical engineering; Professor Warren K. Lewis, '05, exclaiming in his habitual way, "Now listen!"; Professor Erwin H. Schell, '12, noting that many men from Technology have risen to high places "sometimes unexpectedly"; and Professor Norbert Wiener declaring his work could not have been done "if it had not been for the splendid atmosphere of friendship, of freedom, of ability to work, of appreciation" which he had found at the Institute.

The Deans of five of the Institute's schools were heard, too.

Gordon S. Brown, '31, of the

* Technology Review, February, 1955, p. 178; January, 1945, p. 162.



Professor Hunsaker, '12



Professor Prescott, '94



Professor Schell, '12

School of Engineering, said: "Our dominant goal is to educate young engineers who, as professional men, will work on the truly important areas of their profession, who will be guided by the economic, political, and social consequences of their actions, and who, during their careers will bring forth desired new technologies, the very nature of which are essentially unknown during the period of their formal education."

George R. Harrison, of the School of Science, said: "The solution to the problem of increasing our effectiveness in the School of Science at M.I.T. involves not only physical improvements, such as more ample and modern laboratories and equipment, but, in addition, the development of the ability to teach larger numbers of students and to teach them thoroughly. We must develop appropriate teaching aids and we must discover ways to keep up with the advance of science itself."

John E. Burchard, '23, of the School of Humanities and Social Science, said: "Our program of undergraduate liberal education here at M.I.T. accepts the fact that you cannot make specialists into men of wide vision by exhortation."

Pietro Belluschi, of the School of Architecture and Planning, said: "Architecture and city planning . . . are ultimately concerned with a single objective, creating a more civilized physical environment. The need and the opportunity are now greater than ever before."

Howard W. Johnson, of the School of Industrial Management, said: "We are in the heart of a great technical university, and since business and industry are so intertwined with problems of advanced technology, this gives us special advantage."

There were other memorable voices on the program, too, including those of the late President Karl Taylor Compton and of Alfred P. Sloan, Jr., '95.

"Certainly, we the Alumni would be derelict in our duty to the Institute and to our society, to say nothing of ignoring our opportunity," said Mr. Sloan, "if we failed to appreciate our outstanding leadership and the competence of that leadership, and to rally our loyalty, our confidence, and our maximum effort to the support of Dr. Killian,

Dr. Stratton, and their able group of scientists and educators."

Dudley Clapp, '10, was heard again speaking at the 50th commencement luncheon after the graduation of his class:

Now your president has asked me to give you advice:

Half a century's worth in a neat little slice

Though I fear we old fogies don't cut any ice,

Our fond reminiscences bore so.

Just allow me to warn you—your studies aren't through

What you've learned is not all and won't always be true.

Keep alert and receptive to new points of view,

For life is like Tech only more so.

There was a new voice, too, that of DAVO, a machine which simulates the sound of the human voice and is called a Dynamic Analog of the Vocal Tract. It muttered: "Tech is hell." And there was also some eavesdropping on a student and a professor.

"There's the attitude here," said the student, "that, well, we're not going to spoon-feed your education, you're going to have to go out and get it yourself."

"When you teach," Professor Hans Mueller was heard telling the freshmen this fall, "you always in-

troduce certain things, *not* because you expect necessarily that the student will understand it. He is not prepared to understand it. Why? Because we have to say it the first time, we have to say it again a second time, the following term; or the third term, or perhaps the—four or five times more! So we better bring it in the first time already in his freshman year."

The M.I.T. Glee Club provided musical interludes, and Chairman Peters remarked at the telephoned program's conclusion:

"I speak as national Chairman of the Area Organization of the Second Century Fund in saying that we Alumni have it within our power to be members of this great company of builders (to which Dr. Bush had referred). What we have already done to help M.I.T. has encouraged foundations, corporations, and non-Alumni to give generously. What we do from here on will be watched all over the country and can, *as we do well*, be multiplied many times. We have it within our power to demonstrate to the nation that we can underwrite a great resource, which M.I.T. surely is, a great resource for free men everywhere, and for the achievement of their goals—material, cultural, and spiritual."

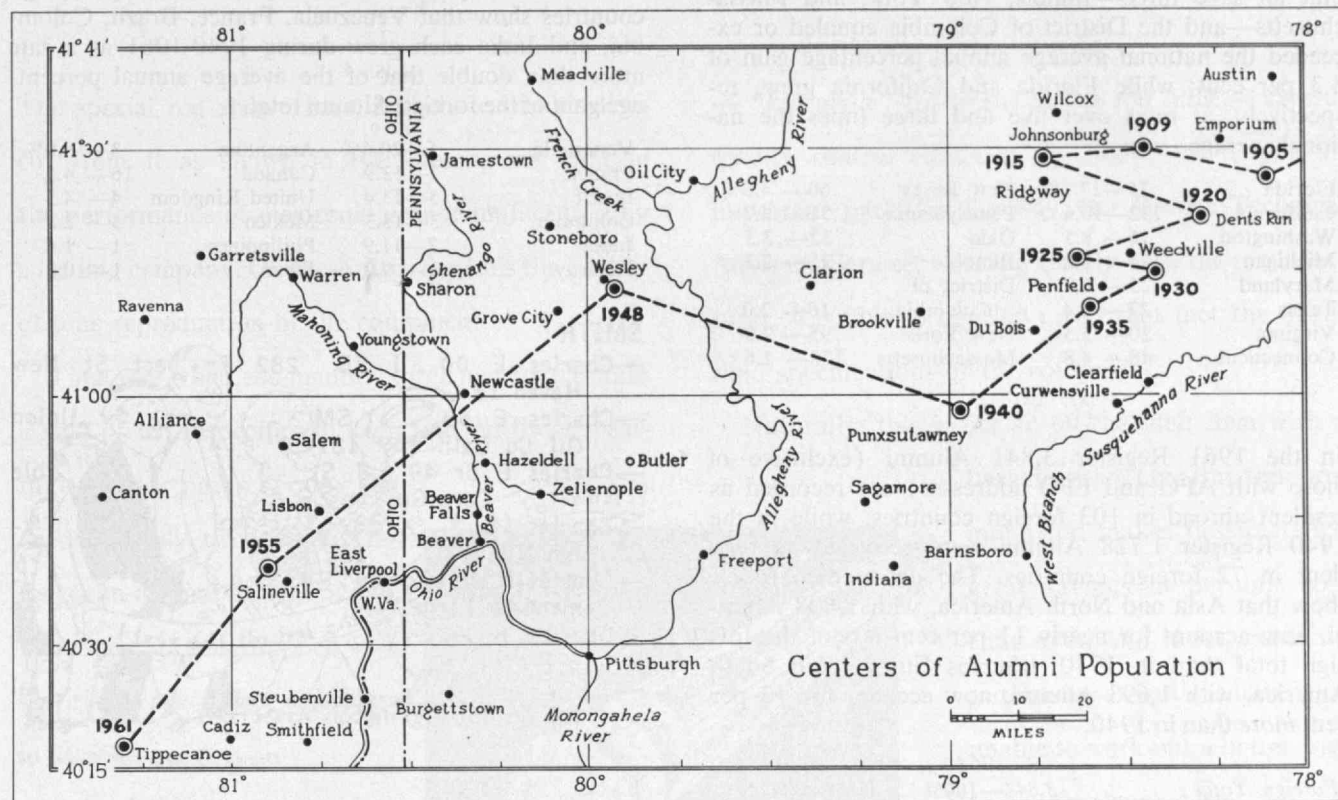


Chairman Arnold, '27, presiding at the meeting of Boston Alumni in Walker.

Westward Ho, and Farther South

Where M.I.T.'s Alumni are now in this country and abroad . . . and the companies they serve

BY H. E. LOBDELL, '17



COMPUTATION of the theoretical population center of the 45,754 Alumni listed as resident in the United States by the 1961 CENTENNIAL ALUMNI REGISTER confirms the continuing trend of the center's movement southward since 1948 and westward since 1940—as shown by the map.

The 1961 center, which is 24.2 miles south and 95.9 miles west of the 1940 center, is a point about 1½ miles west of Tippecanoe in Harrison County, Ohio—at latitude 40° 16' N and 81° 19' W.

During the 21-year span, 1940-1961, the *average yearly movement* of the M.I.T. center, which was 2.3 miles south and 5.9 miles west, exceeded the corresponding average yearly movement of the population center for the entire country during the 20-year span, 1940-1960, which, as reported by the Federal Census, was 1.2 miles south and 4.8 miles west.¹

Alumni distribution shifts during 1940-1961 are illustrated in the tabulations at the right, the first of which shows data by regional areas indicating that the North Atlantic region now accounts for nearly 9 per cent *less* of the total Alumni in the United States than in 1940, whereas the Western region now accounts for 5.4 per cent *more* than in 1940.

	1961	1940
U.S. Total	45,754—100%	27,108—100%
North Atlantic	26,994— 59.0%	18,365— 67.7%
North Central	5,972— 13.0	3,338— 12.3
Western	5,893— 12.9	2,028— 7.5
South Atlantic	4,934— 10.8	2,356— 8.7
South Central	1,961— 4.3	1,021— 3.8

Similar comparative data by the leading states show that Massachusetts and New York now account, respectively, for nearly 7 per cent and 3 per cent *less* of the U.S. Alumni than in 1940, whereas California now accounts for over 4 per cent more than in 1940.

	1961	1940
Massachusetts	11,614— 25.4%	8,712— 32.1%
New York	6,749— 14.8	4,746— 17.5
California	4,014— 8.8	1,241— 4.6
New Jersey	2,541— 5.6	1,288— 4.7
Pennsylvania	2,450— 5.4	1,384— 5.1
Connecticut	2,004— 4.4	1,001— 3.7
Ohio	1,641— 3.6	974— 3.6
Illinois	1,361— 3.0	915— 3.4
Michigan	1,162— 2.5	428— 1.6
Dist. of Columbia	1,151— 2.5	809— 3.0
Texas	983— 2.1	418— 1.5
Florida	928— 2.0	202— 0.7
Maryland	890— 1.9	369— 1.4
Virginia	785— 1.7	366— 1.4
Washington	537— 1.2	193— 0.7

¹ The U.S. center in 1940 was 2½ miles SE by E of Carlisle, Ind.; and in 1960 it was 6½ miles NW of Centralia, Ill.

During 1940-1961, the U.S. Alumni total increased at an average of 887 per year, making its *average an-*

nual percentage gain 3.3 per cent. Corresponding data given below for the regional areas indicate that all but the North Atlantic region exceeded the national average, and that the Western region exceeded it nearly threefold.

U.S. Total	887—3.3%	South Central	45—4.4%
Western	184—9.1%	North Central	125—3.8
South Atlantic	122—5.0	North Atlantic	411—2.2

Similar comparative data by the leading states show that all save three—Illinois, New York, and Massachusetts—and the District of Columbia equaled or exceeded the national average annual percentage gain of 3.3 per cent; while Florida and California grew, respectively, at rates over five and three times the national average.

Florida	35—17.1%	New Jersey	60— 4.6%
California	132—10.6	Pennsylvania	51— 3.7
Washington	16— 8.5	Ohio	32— 3.3
Michigan	35— 8.2	Illinois	21— 2.3
Maryland	25— 6.7	District of	
Texas	27— 6.4	Columbia	16— 2.0
Virginia	20— 5.5	New York	95— 2.0
Connecticut	48— 4.8	Massachusetts	138— 1.6

☆☆☆

In the 1961 Register 3,841 Alumni (exclusive of those with APO and FPO addresses) are recorded as resident abroad in 103 foreign countries, while in the 1940 Register 1,728 Alumni were recorded as resident in 72 foreign countries. The data which follow show that Asia and North America, with 1,608 Alumni, now account for nearly 11 per cent *less* of the foreign total than in 1940, whereas Europe and South America, with 1,693 Alumni, now account for 13 per cent *more* than in 1940.

	1961	1940
Foreign Total	3,841—100%	1,728—100%
Europe	1,032— 26.9%	336— 19.4%
North America	878— 22.8	477— 27.6
Asia	730— 19.0	434— 25.1
South America	661— 17.2	200— 11.6
Oceania	184— 4.8	112— 6.5
West Indies	154— 4.0	97— 5.6
Africa	107— 2.8	33— 1.9
Central America	95— 2.5	39— 2.3

Similar comparative data by the leading foreign countries show that Canada, Mexico, Japan, and the Philippines now with 1,112 Alumni account for nearly 10 per cent *less* of the foreign total than in 1940, whereas India, France, Brazil, Venezuela, and Colombia now with 777 Alumni account for nearly 9 per cent *more* than in 1940.

	1961	1940
Canada	690— 18.0%	354— 20.5%
India	220— 5.7	63— 3.7
France	188— 4.9	48— 2.8
Mexico	188— 4.9	123— 7.1
United Kingdom	183— 4.8	96— 5.5
Brazil	141— 3.7	37— 2.1
Venezuela	133— 3.5	25— 1.4
Japan	119— 2.9	102— 5.9
Philippines	115— 2.8	85— 5.0
Norway	110— 2.9	38— 2.8
Argentina	98— 2.6	34— 2.0
Colombia	95— 2.5	25— 1.4

During 1940-1961, the total of foreign Alumni increased at an average of 101 per year, making its av-

erage annual percentage gain 5.7 per cent, while for South America, Africa, and Europe the average annual percentage gains were approximately twice that of the foreign total, as follows:

Foreign Total	101— 5.7%	North America	19— 4.0%
South America	22—11.0%	Asia	14— 3.3
Africa	4—10.7	Oceania	3— 3.1
Europe	33— 9.9	West Indies	3— 2.8
Central America	3— 6.8		

Similar comparative data by the leading foreign countries show that Venezuela, France, Brazil, Colombia, and India each grew during 1940-1961 at a rate more than double that of the average annual percentage gain of the foreign Alumni total.

Venezuela	5—20.6%	Argentina	3— 9.0%
France	7—13.9	Canada	16— 4.5
Brazil	5—13.4	United Kingdom	4— 4.3
Colombia	3—13.3	Mexico	3— 2.5
India	7—11.9	Philippines	1— 1.6
Norway	3— 9.0	Japan	1— 0.8

SMITH



Drawn by Henry B. Kane, '24.

In the 1961 Register there are 422 "Smiths" compared to 296 in the 1940 Register. In both books the second and third names most frequently found are "Brown" and "Johnson," but the presumably prolific "Jones" family, while it moved upward from 11th place in 1940 as shown by the listing below, only reached a tie for 8th in 1961—thus still trailing "Miller," "Davis," "Williams," and "Anderson."

1961		1940	
1. Smith	422	1. Smith	296
2. Brown	264	2. Brown	188
3. Johnson	242	3. Johnson	143
4. Miller	190	4. Davis	128
5. Davis	161	5. Williams	116
6. Williams	155	6. Miller	112
7. Anderson	147	7. Taylor	101
8. Jones	138	8. Clark	100
9. White	138	9. Hall	100
10. Wilson	138	10. Wilson	94
11. Moore	133	11. Jones	89
12. Taylor	131	12. White	89
13. Thompson	117	13. Moore	85
14. Lee	107	14. Thompson	76
15. Clark	106	15. Baker	74
16. Martin	106	16. Anderson	71
17. Baker	103	17. Lee	46
18. Hall	100	18. Martin	42

The 18 names recorded above as appearing at least 100 times in the 1961 Register account for a total of 2,898 Alumni, whereas in the 1940 Register there were

BUSINESS IN MOTION

To our Colleagues in American Business ...

The special rod shown here, and the coin-like discs cut from it as shown in the sketch, are vital to the performance of electronic gear manufactured by a leading company. On these discs depends the fidelity of tone reproduction of the equipment.

Time was when the manufacturer had to maintain a staff of ten inspectors to keep tabs on these seemingly-minor parts. Today, he need use only two. Before, rejections ran as high as 40%. Now, rejection rate has dropped to a surprising low of but six pieces in 30,000!

Behind this story of savings — as in the case of so many others—you can find the Revere Technical Advisory Service at work. By combining the skills of the manufacturer's engineering department and Revere Methods and Production Departments, the reasons for the high rejection rate were discovered. In simplest terms, ordinary free cutting brass rod just couldn't do the job properly. Rigid control of molecular structure of the alloy

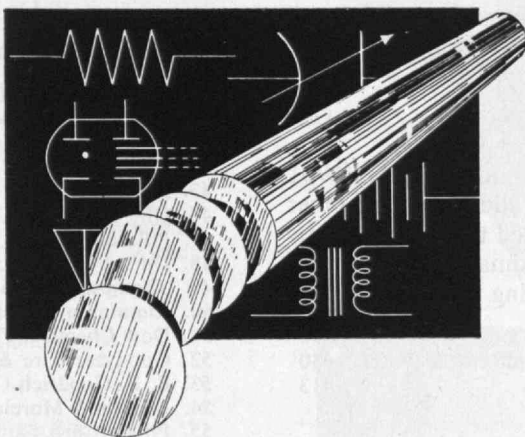
— “kid glove” treatment at the rod mill — careful quality control all down the line — *all* played an important part. In this way, the Revere Technical Advisory Service, working closely with the manufacturer, was able to develop a rod that met the ultrarigid specifications of the equipment.

Naturally, this is not an off-the-shelf item with a

bargain price-tag. But this premium rod makes possible such great savings in per-unit cost that even the most exacting purchasing executives have been unable to work out a better way to handle the problem.

All of which leads to this point:

Whether you are buying metals, as here, or any other material, it is not always true economy to buy on a price basis. You will probably find that by taking your suppliers into your confidence—by discussing specific problems with them and adding their abilities and experience to your own—you will frequently cut costs in the long run or produce a superior product, or both.



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1,950 under these same 18 names. Three of the names—"Martin," "Lee," and "Anderson"—more than doubled during 1940-1961; and none totaled less in 1961 than in 1940 although the "Halls" neither gained nor lost, being 100 twenty-one years ago and 100 today.²

Geographically, nearly half of the 2,898 Alumni of these 18 names in 1961 appear on the rosters of the six leading states, viz.:

Total—"Smiths," "Browns," etc.		2,898—100%
Massachusetts	540—18.6%	Pennsylvania 142—4.9%
New York	287—9.9	New Jersey 130—4.5
California	226—7.8	Connecticut 101—3.5

Remaining in 42 states and foreign countries 1,472—50.8%

The 422 "Smiths" exactly match the total number of Alumni in the seven states of Idaho, Montana, Nevada, Utah, Wyoming, Alaska, and Arizona; the 264 "Browns" and the 242 "Johnsons" each total slightly less than the Alumni of the first six of these states. The 190 "Millers" are almost equal to the Alumni of Idaho, Montana, and Utah; and the 161 "Davises" are one more than the Alumni of Idaho, Montana, Nevada, and Wyoming.

There is now at least one "Smith" in 46 of the 50 states,³ one "Brown" in 36, one "Johnson" in 35, one "Miller" in 31, and one "Davis" in 26. Each of the 18 names appears most frequently in Massachusetts, next in New York, and third in California—except that in California there are more "Johnsons," "Davises," "Lees," and *twice as many* "Joneses" as in New York.



Of the 36,242 Alumni who responded to the 1961 Register query by verifying their addresses and other data, 28,884 (80 per cent) indicated the companies by which they were employed. Approximately five per cent of the 28,884 were with the following three companies:

1. General Electric Co.	593
2. American Telephone and Telegraph Co.	430 ⁴
3. E. I. du Pont de Nemours & Co.	413

Another five per cent were with the following seven companies:

4. Raytheon Co.	317
5. Radio Corporation of America	241
6. International Business Machines Corp.	237
7. Westinghouse Electric Corp.	203
8. General Dynamics Corp.	201
9. United Aircraft Corp.	191
10. Standard Oil Co. (N.J.)	170

A third five per cent, making 15 per cent, were with the 10 companies listed in the next column:

² The "Halls" continued to keep ahead of the "Q's" who numbered 39 in 1940 ("Quadri" to "Quiros") and increased to 86 in 1961 ("Quackenboss" to "Quynn"). By 1961, however, the "Q's" were no longer the least common name initial having been displaced by two "X's" ("Xavier" and "Xylas").

³ In all but Idaho, Montana, and the two Dakotas. Incidentally, no one of the 16 Alumni in South Dakota, which is the smallest state Alumni-wise, bears one of the 18 names which appear 100 or more times in the 1961 Register.

⁴ Includes: Bell Telephone Laboratories, 187; Bell System, 174; and Western Electric Co., 69.

11. Sperry Rand Corp.	149
12. Boeing Airplane Co.	146
13. Sylvania Electric Products Co.	143
14. North American Aviation, Inc.	139
15. General Motors Corp.	138
16. Lockheed Aircraft Corp.	137
17. Eastman Kodak Co.	134
18. Arthur D. Little, Inc.	131
19. Bethlehem Steel Co.	126
20. Union Carbide Corp.	119

A fourth five per cent, making 20 per cent, were with the following 20 companies:

21. Hughes Aircraft Corp.	114
22. Martin Co.	99
23. Monsanto Chemical Co.	84
24. Minneapolis-Honeywell Regulator Co.	83
25. United States Steel Corp.	80
26. Avco Corp.	76
27. Shell Oil Co.	76
28. Bendix Corp.	75
29. Mitre Corp.	75
30. Socony Mobil Oil Co.	74
31. W. R. Grace & Co.	73
32. Stone & Webster Engineering Corp.	73
33. Texas Instruments, Inc.	72
34. Grumman Aircraft Engineering Co.	66
35. Procter & Gamble Co.	66
36. American Cyanamid Co.	65
37. Ford Motor Co.	61
38. Douglas Aircraft Corp.	59
39. Space Technology Laboratories, Inc.	58
40. Standard Oil Co. (Ind.)	54

A fifth five per cent, making 25 per cent, were with the following 42 companies:

41. Aero-Jet General Corp.	53
42. International Telephone & Telegraph Co.	50
43. Allied Chemical Corp.	49
44. Hercules Powder Co.	49
45. Northrop Corp.	47
46. Olin Matheson Chemical Corp.	46
47. Polaroid Corp.	46
48. United Shoe Machinery Corp.	45
49. Thompson-Ramo-Wooldridge, Inc.	44
50. Aluminum Co. of America	43
51. Dow Chemical Co.	43
52. Goodyear Tire & Rubber Co.	42
53. B. F. Goodrich Co.	42
54. Jackson & Moreland, Inc.	40
55. Philco Corp.	39
56. United States Rubber Co.	39
57. California Research Corp.	37
58. Humble Oil and Refining Co.	37
59. Merck and Co.	35
60. Standard Oil Co. (Calif.)	35
61. Foxboro Co.	34
62. General Radio Co.	34
63. Texas Co.	33
64. Charles T. Main, Inc.	32
65. Public Service Electric and Gas Co. (N.J.)	32
66. Allied Research Associates, Inc.	31
67. Chrysler Corp.	31
68. Consolidated Edison Co. of N.Y.	31
69. Corning Glass Works	31
70. Sprague Electric Co.	31
71. Laboratory for Electronics, Inc.	30
72. Republic Aviation Corp.	30
73. Rohm and Haas Co.	30
74. Allis-Chalmers Manufacturing Co.	29
75. Chance Vought Corp.	29
76. Boston Edison Co.	28
77. Combustion Engineering, Inc.	28
78. Edgerton, Germeshausen & Grier	28
79. General Foods Corp.	28
80. M. W. Kellogg Co.	28
81. McDonnell Aircraft Corp.	27
82. Newport News Shipbuilding and Dry Dock Co.	27

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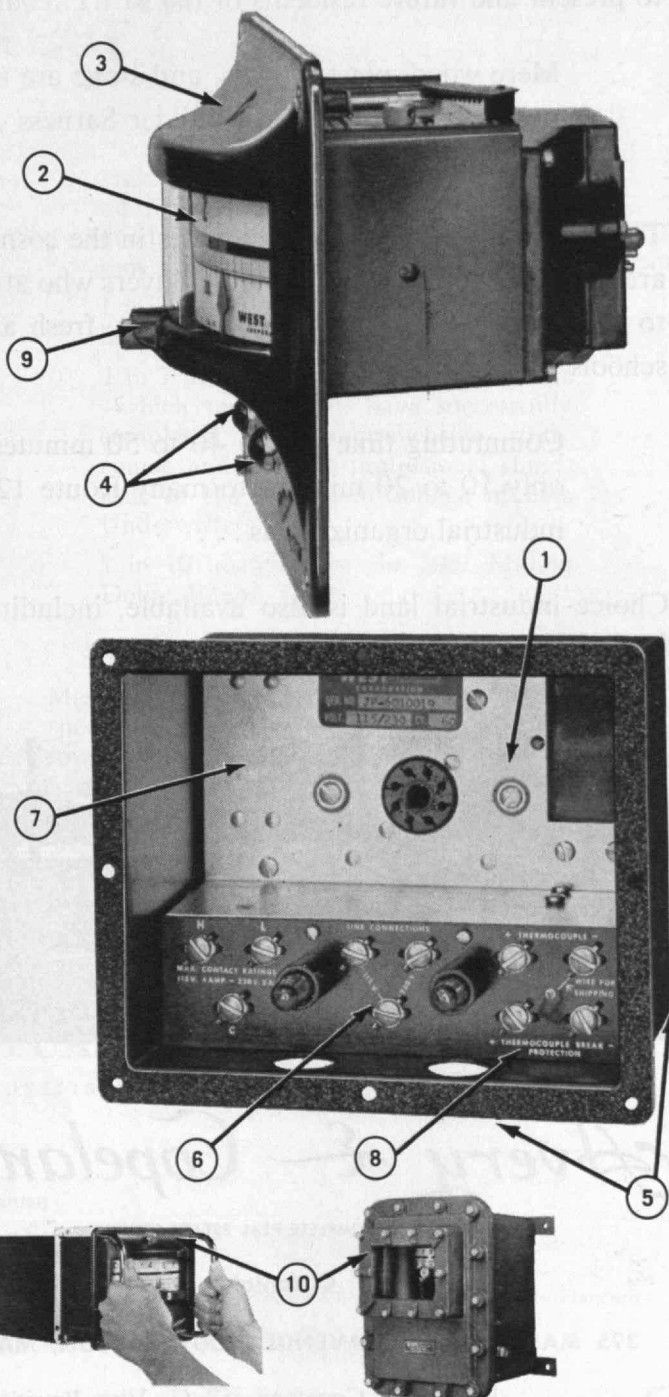
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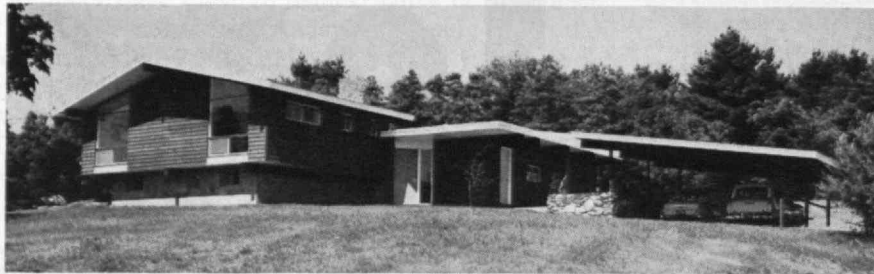
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Individuals Noteworthy

(Continued from page 10)

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments follow:

C. Lalor Burdick, '13, as a Director, Planned Parenthood Federation of America . . . *Paul J. Cardinal, '24*, as Treasurer, Drug, Chemical and Allied Trades Association, Inc. . . . *F. Marcucella, '27*, as President, John A. Volpe Construction Company, Melrose, Mass.;

William E. Shenk, '28, as a Vice-president, Abbey Etna Machine Company, Perrysburg, Ohio . . . *Ira H. Abbott, '29*, as Director, Office of Advanced Research and Technology, National Aeronautics and Space Administration . . . *Salvador Madero, Jr., '29*, as Executive Vice-president, Cia. H. K. Porter Company de México, S.A.;

Thomas A. Fearnside, '31, as a Director, Stone & Webster Engineering Corporation . . . *Eugene P. Worthen, '32*, as Assistant Technical Manager, Shipbuilding Division, Bethlehem Steel Company . . . *Arthur W. Gilbert, '35*, as a Vice-president, Freeport Sulphur Company;

Benjamin F. Schlimme, Jr., '35, as Assistant General Manager, Industrial and Biochemicals Department, E. I. du Pont de Nemours and Company . . . *John F. Snuggs, '38*, as Chief Engineer, General Engineering Department, American Oil Company;

Richard E. Whiffen, '44, as General Manager, Bendix Products—Aircraft Division . . . *Lloyd H. Tuoff, '45*, as Secretary, Rhode Island State Board of Registration and Examination of Architects . . . *Kenneth L. Block, '47*, as a Director, Littelfuse, Inc., Des Plaines, Ill.;

Martin W. Essigmann, '47, named Dean of Research, Northeastern University . . . *Richard W. Warren, '49*, as Manager of Sales for Germany, Holland, and Italy, Chicago Bridge & Iron Company . . . *John F. Jacobs, '52*, as Assistant Vice-president—Technical Operations, The Mitre Corporation . . . *George B. Raymond, '55*, as a Director, Raymond Engineering Laboratory, Inc., Middletown, Conn.

(Continued on page 40)

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Frank W. Hiller, '43, Home Office
Richard A. Faust, '56, Binghamton
Aman M. Barber, Jr., '59, Allentown

LEHIGH

Russell E. Hoaster, C.L.U., '31,
San Antonio
Edward Billstein, Jr., '40, Atlanta
R. Lester Dodson, Jr., '44, New York

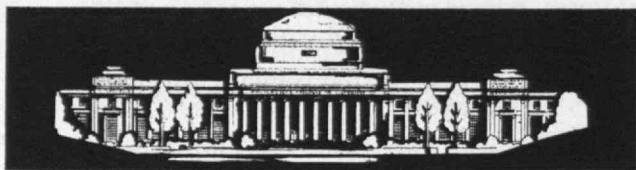
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Individuals Noteworthy

(Continued from page 38)

At M.I.T. Now

RECENT appointments to the Institute's staff include those of *Peter D. Leavitt* as assistant director of admissions and *Jerome H. Adler* as supervisor of Audio-Visual Services.

Mr. Leavitt, a graduate of Union College, in Barboursville, Ky., has been assistant director of admissions at Babson Institute, done marketing research for the Liberty Mutual Insurance Company, and served for two years aboard a cutter with the U.S. Coast Guard.

Mr. Adler, a graduate of the Central Technical Institute in Kansas City, has had wide experience as an engineer in tape recording and communications work.

Dr. Bolt's New Post

THE National Science Foundation has established a Science Resources Planning Office and named Professor Richard H. Bolt, who is on leave from M.I.T., to head it.

"The word 'resources' in the name of the Office," says Dr. Bolt, "means the scientists and engineers who teach and do research, their equipment and publications, the facilities and institutions in which they work, and the dollars they spend. It also covers the products of science—new knowledge and new trained personnel—for these are in turn resources for more science, for technology, and for all science-based endeavor."

Aerospace Leaders

PROFESSOR H. Guyford Stever of M.I.T., who is president of the Institute of the Aerospace Sciences, will be the toastmaster at an IAS dinner on December 5 in Orlando, Fla., and the guest of honor and principal speaker will be Major General *Leighton I. Davis*, '41, USAF, Commander of the Patrick Air Force Base Missile Test Center.

Captain *Thomas J. Rudden, Jr.*, '46, Deputy to Admiral Raborn, Chief of the Bureau of Naval Weapons, will speak at an IAS luncheon the preceding day; and *George C. Pfaff, Jr.*, '39, will be a co-chairman of a session concerned with aircraft support.

(Concluded on page 42)

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TECH NEWS

FOR SCIENTISTS,
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GROUP, M.I.T.

In its research and analysis for the Chief of Naval Operations and Fleet Commanders, the Operations Evaluation Group, M.I.T., pursues knowledge in virtually every sphere of naval interest.

Consider OEG study 644, for example, entitled "Echo Variability and the Formulation of a Radar Theory." OEG's analysts found that blaming radar operators and poor radar maintenance for variability of signal presentation on radar scopes (all other things supposedly being equal) was convenient but erroneous. New culprits will have to be isolated and bested. OEG thinks it has found some of them for the Navy.

When is a sea not a sea? When it's a swell. Seriously. Seas and swells, ramp-to-touchdown distances, vertical velocities, wave-to-wave amplitude variations, and similarly specialized factors enter into "The Effect of Ship Motion and Flight Deck Geometry upon Carrier Air Operations." This is Naval Warfare Analysis Group Study No. 20 (NAVWAG being the long-range studies division of OEG). One interesting conclusion: Position of the touchdown point has a greater effect on precluded flying time than does ship length. And on the subject of ship length, the minimum recommended (for an angled-deck carrier) is 800 feet.

Would you like to have a hand in similar research, knowing that you would be contributing importantly to the national defense? Well paid career appointments in Washington, D.C., and Cambridge are available to scientists, mathematicians and engineers with advanced degrees. Direct your inquiry to the Director, Dr. Jacinto Steinhardt, either in Washington or in Cambridge.

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Individuals Noteworthy

(Concluded from page 40)

In Operations Evaluation

THE Economics Division of the Operations Evaluation Group, M.I.T., is to be expanded under the supervision of *Stephen Enke* of Duke University. This division is concerned with problems of logistics, weapon systems evaluation, and Navy support requirements. Dr. Enke was for 10 years chief of the Rand Corporation's logistics department and has been a visiting professor of economics at Yale University.

Recent additions to the OEG research staff announced by its Director, Jacinto Steinhardt, include: *Marc A. Nerenstone*, ceramics engineer; *Vernon E. Palmour*, operations analyst; *Bruce F. Powers*, physical chemist; and *Howard L. Wiener*, mathematician.

50 Years at M.I.T.

ABNER STODDER completed a half century of continuous employment as an electrician at M.I.T. on October 26, and was honored by many of his colleagues at a reception in Kresge Auditorium.

He started in the Instrument Room of the Electrical Engineering Department when the Institute was located at Copley Square, com-



Stephen Enke

pleted a two-year night course at Wentworth Institute in 1914, and became an electrician in the Physical Plant Department when M.I.T. moved to Cambridge in 1916. He has never been late for work and has never missed the commencement exercises—a record for which he has been acclaimed in the Boston newspapers.

Mr. Stodder was the first president of the M.I.T. Quarter Century Club, is a 32d degree Mason, and has long been active in civic affairs. His wife, Mrs. Helen Stodder, is a nurse in the M.I.T. Infirmary.



Ab Stodder (at left) and Vice-president Philip A. Stoddard, '40, examining a picture of the room where Mr. Stodder began work for M.I.T. in Boston.

Moment of Truth . . .

Remember? The bluebooks were passed, the exam questions posted . . . then the panicky moment of blankness before facts gradually swam into focus. Final exams were the crucible of study and, in a real sense, forerunners of the many "moments of truth" for which each of us must prepare throughout life.

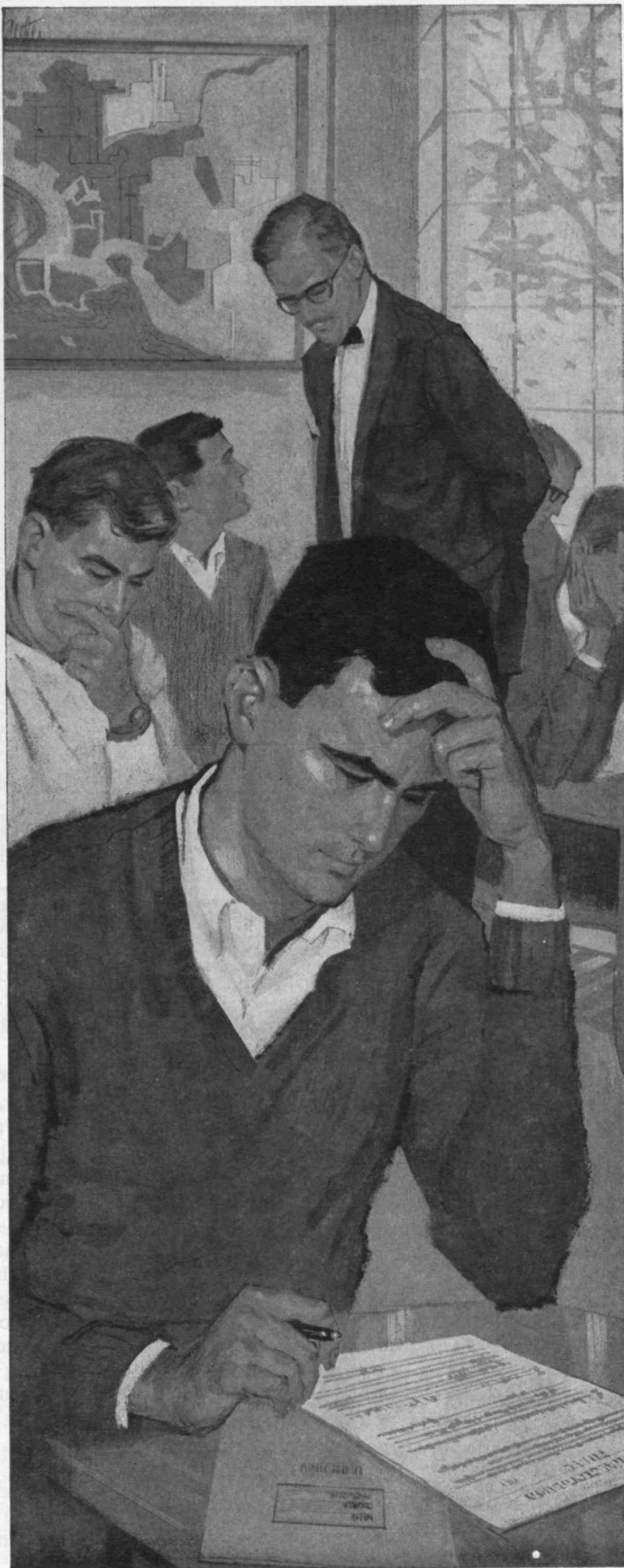
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Astronautics projects include booster systems and manned/unmanned space vehicles plus extensive activities in broad fields of research and development. Engineers and scientists who qualify will be given key responsibilities in these fields . . .

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Trend of Affairs

(Continued from page 16)

Lecturers on Electronics

LINCOLN LABORATORY began presenting a series of lectures on "The Age of Electronics" last month to observe its 10th anniversary. These lectures are being given in the evening, at 8:00 P.M., in Kresge Auditorium, and the dates, topics, and speakers include:

December 11—"Communications," by Lloyd V. Berkner, the President of the Graduate Research Center of the Southwest, in Dallas, and chairman of the Space Science Board of the National Academy of Sciences;

January 9—"Computers," by Stanislaw M. Ulam, a research adviser of the Los Alamos Scientific Laboratory, who is noted for initiating the widely used Monte Carlo method for the statistical treatment of mathematical problems too complex for conventional analysis;

January 16—"Radio Telescopes," by Edward G. Bowen, chief of the Division of Radio Physics in the Commonwealth Scientific Industrial Research Organization in Sydney, Australia, and an original member in 1935 of the English radar development team;

January 23—"Transistors," by William Shockley, '36, co-winner of a Nobel prize for fundamental contributions to transistor physics and now Director of the Shockley Transistor Unit of Clevite Transistor, in Palo Alto, Calif.;

February 6—"Masers," by Charles H. Townes, Provost of M.I.T., and holder of the fundamental patent on these revolutionary low-noise amplifying devices;

February 27—"Satellite Relays," by John R. Pierce, in whose division at the Bell Telephone Laboratories the work on Project Echo was done.

The first two speakers in this lecture series were to be Hendrik B. G. Casimir, discussing "Maxwell, Hertz, and Lorentz," and Ivan A. Getting, '33, on the subject of "Radar." Dr. Casimir is the director of the renowned Philips Research Laboratories, and Dr. Getting, a former professor at M.I.T., is president of the Aerospace Corporation in El Segundo, Calif.

Microfilm System Research

THE Council on Library Resources, Inc., has granted \$27,070 for construction of a model of a relatively inexpensive microfilm finder-reader system for library use, under the supervision of Peter R. Scott, Head of the Microreproduction Laboratory of M.I.T. Libraries.

The objective is to eliminate an inherent weakness in roll microfilm systems—the reader's inability to search through a long roll for the material he is seeking without wasting a lot of time. This has been a major deterrent to the use of roll microfilm. A mechanism is planned now that will be equipped with a stroboscopic finding device to enable the reader to observe an index continuously while the film is in rapid motion.

The project resulted from two years' preparatory research, and the grant provides for construction of a system compatible with the general design of existing, commercially available microfilm readers. The work will be done jointly by the Microreproduction Laboratory and Edgerton, Germeshausen & Grier, Inc.

(Concluded on page 46)



SUBJECT: PERSONAL SERVICE



FLETCHER CHAMBERLIN AND OLNEY MORRILL TALK ABOUT PERSON-TO-PERSON SERVICE AND WHAT IT MEANS FOR THE CUSTOMERS OF THE NEW ENGLAND MERCHANTS NATIONAL BANK

(Mr. Morrill is a Senior Vice President and Mr. Chamberlin is a Vice President of the newly formed New England Merchants.)

MORRILL: You know, I've been in banking a long time, but I'll never lose the satisfaction I get when someone says: "Will you help me with my banking problems?"

CHAMBERLIN: Well, that's the kind of question that leads to the person-to-person service we emphasize.

MORRILL: Right. And we welcome the responsibility which goes along with it.

CHAMBERLIN: That's exactly the way I think of it, because we always took this responsibility very seriously at The New England Trust before our consolidation, the same way you did.

MORRILL: One thing: it isn't a general or group responsibility either—but a *personal* responsibility for each customer and his needs. Not always an easy job, but it is a vital one.

CHAMBERLIN: And a sense of responsibility like this seems

to translate itself naturally into the person-to-person service the new New England Merchants offers every customer . . .

MORRILL: Whether his business is in our commercial or trust department or anywhere else in our Bank.

CHAMBERLIN: When you come right down to it, the basis for our personal service is really very simple. We try to put ourselves in our customers' shoes—that way, we gain a better insight into their needs.

MORRILL: And that's how we arrived at many of our services: having banking windows open ten hours a day, a new motor bank, an investment plan for those with \$5,000 or more to invest—just to name a few.

CHAMBERLIN: Sounds like a pretty good bank to do business with, doesn't it?

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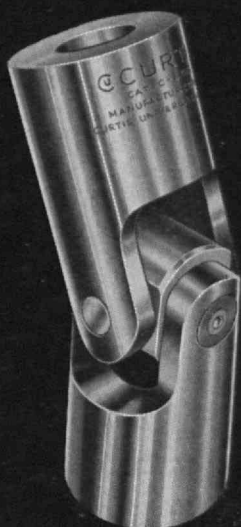
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Trend of Affairs

(Concluded from page 44)

The Alumni Council Meets

AT ITS first fall meeting, with D. Reid Weedon, Jr., '41, presiding, the M.I.T. Alumni Council heard Professor Hans Mueller discuss teaching and Dr. Samuel D. Clark explain the work of the Institute's medical staff.

Professor Mueller stressed the importance of making undergraduates want to learn and demonstrated with his voice and gestures how he creates tension and suspense in his classroom. No one who has written a textbook should be allowed to lecture, he said, and no one should give the same course for more than four years.

Dr. Clark described the Faculty Health Survey begun 10 years ago and the student and employee health programs. Each student who enters M.I.T. now brings a report from his family physician, examinations are given by appointment, and the queues that many Alumni recall are gone. Very few young people have been denied admission to the Institute because of health problems.

Russell W. Ambach, '24, presented resolutions occasioned by the death of Francis A. Barrett, '24.

H. B. Kane, '24, reported that last year's Alumni Fund of \$575,596 was second only to the 1960 Fund. Hugh S. Ferguson, '23, reporting for the Audit and Budget Committee, announced that The Technology Review had returned a profit to the Alumni Association and that the salary of its publisher, H. E. Lobdell, '17, which was \$1 a year, had been quadrupled.

On the Textile Frontier

SIGNIFICANT breakthroughs on problems of surface mechanics, as contrasted with those of internal mechanical properties, of fibers, yarns, and fabric structures were forecast by Milton M. Platt, '42, when he accepted an award for distinguished achievement from The Fiber Society this fall. Dr. Platt is vice-president and associate director of Fabric Research Laboratories, Inc., in Dedham, Mass.

"Although much work has been done in this field," he said, "it is understandable why most of the approaches thus far have been chiefly exploratory and semi-empirical, for the problems of surface mechanics are indeed very complex. A better understanding of the how and why of the mechanical interaction of fibers in finished fabrics will give insight to many problems plaguing the textile industry today." Many of these problems, he believes, may be resolved by a better understanding of surface forces, resistance to motion, and the mechanical response of surfaces and stress-transmission among the fibers comprising a textile product.

College Publications Seminar

THE M.I.T. Office of Publications was host this fall to an all-day seminar on designing publications for educational institutions. Representatives of many New England schools and some institutions as distant as the Illinois Institute of Technology, Iowa State University, and Stanford University attended. John I. Mattill, Director of Publications at the Institute, presided and the discussion dealt largely with work done by Jacqueline Casey, Muriel Cooper, Ralph Coburn, '47, and others for M.I.T.



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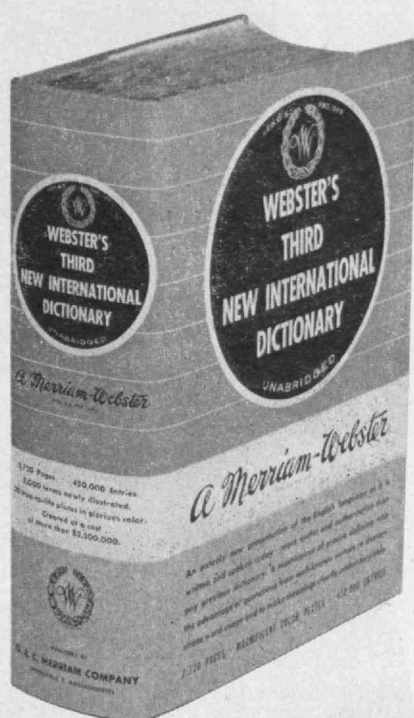
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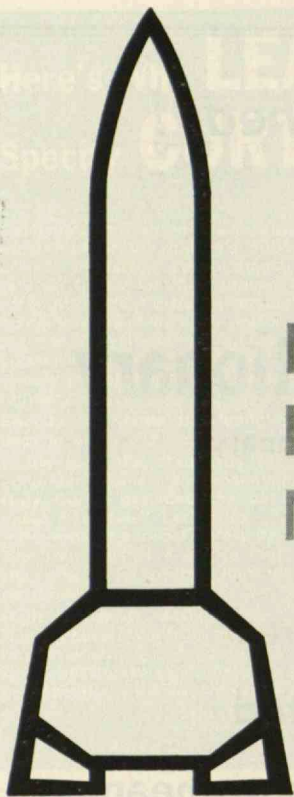
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For information on the pattern recognition position write or phone direct to Dr. Taffee Tanimoto, Head of Pattern Recognition Laboratory.

Further information on the programming positions is available through Mr. Joseph Van Horn, Head, Computer Laboratory.

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Krakatau Revisited

(Concluded from page 23)

The energy in the larger individual eruptions approximated the energy released in detonating 170 tons of TNT; about the energy of a small nuclear bomb. Much of this was dissipated, however, in nonexplosive heat. The actual explosive energies generating the small ground shock waves recorded by the seismograph were about those associated with detonating 15 tons of TNT. The daily energy release was much more impressive, totaling that of 31,000 tons of TNT (3.1×10^{13} calories)!

A little was learned about the mechanism of Anak Krakatau's recent eruptions, but as always more new problems were posed than answered. Where is the ultimate source of volcanic heat? If it is not caused by small anomalous hot spots of natural radioactive decay (volcanic rocks are often low in uranium, thorium, and potassium content), by what means is pressure reduced at a depth to allow the normally hot but solid mantle of the earth to partially melt? How does the molten rock come to the surface, and why in such diverse ways at such irregular intervals? To seek a good answer was one purpose of the expedition. Estimating the present danger of Krakatau requires an understanding of these problems.

Nature has unleashed volcanoes on the world throughout geologic time. Man has just begun to fight back.

REFERENCES: Decker, R. W., and Hadikusumo, D., 1961, Results of Jan. 1960 Expedition to Krakatau: *Jour. Geophys. Research*, in press; Neumann van Padang, M., 1951, Catalogue of Active Volcanoes of the World Including Solfatara Fields: Part 1, Indonesia, International Volcanological Assoc., Napoli, Italy; Royal Society, 1888, The Eruption of Krakatoa: Trübner & Co., London, 494 p.; Stehn, Ch. E., 1929, The Geology and Volcanism of the Krakatau Group: *Proc. 4th Pac. Sci. Congr.*, Batavia; Van Bemmelen, R. W., 1949, The Geology of Indonesia: Martinus Nijhoff, The Hague, Volume 1, pp. 188-256; Verbeek, R. D. M., 1886, Krakatau, Batavia; Williams, Howell, 1941, Calderas and Their Origin: Univ. of Cal. publications, *Bull. Dept. Geol. Sci.*, Volume 25, No. 6, pp. 239-346.

In The Review Next Month



LINCOLN LABORATORY will be featured in text and photos in the January, 1962, issue of *The Review*. Pictured here is the radar it operates on Millstone Hill in Westford, Mass.

Instrumentation Developments

(Concluded from page 26)

How does one find information on methodology and instrumentation? Strangely enough, at present, by chance only. Every research worker becomes familiar, during his study or his work, with a number of methods which he uses later on, but whether these are optimal methods for a given purpose usually remains unknown. In many cases, too, the question whether a suitable method or instrument already exists and is described in the literature, or must be developed, remains unanswered.

The remedy for this lack of information is twofold: Integration of the field of instrumentation, and better instrumentation education. Instrumentation, in order to be of value, must be treated on a very general level. The methods used in one field can be applied in other fields, methods of measuring light scattered from protein molecules, for example, are not different from those of measuring light from a star, and signal-to-noise problems are identical in biology and astronomy.

We, in the group at M.I.T. with which I am connected, have taken up the problem of integration of the entire field of instrumentation. The available wealth of material has been made manageable, in our opinion, by the breakdown of all instruments into their basic units, their building blocks, which we call instrumentation elements. There is a finite number of elements from which the infinite number of complete systems can be composed or synthesized. A logical grouping of these elements assures us reasonably complete coverage and elimination of redundancy. With the help of this system we hope not only to establish a logical coding system for information retrieval for all instruments, but also a system that can be used in teaching instrumentation.

The Virtues Required

There is little doubt that in the near future new general courses in instrumentation will be offered in many schools and universities. Nobody working in the experimental natural sciences can afford to be without adequate knowledge of in-

strumentation; it not only furnishes the practical tools for scientific accomplishment, but also, like mathematics, can profoundly influence the direction of one's research and increase one's research potential.

We are living in a scientific world of ever-increasing specialization and of ever-increasing isolation of the single research worker. This sometimes gives us status as individuals—yet we regret it, because it leads to a breakdown of communications between the sciences. Intellectual values that result from familiarity with our neighbor's way of thinking are often lost, and science—which aspires, ultimately, for unification and integration—is imperiled by the very specialization it has developed.

Because of instrumentation's interdisciplinary character, it can be the common ground between many scientific disciplines. It can provide that common language which assures useful communication and understanding between individual fields, provided we succeed in endowing it with the virtues every science should strive for: basic understanding, simplicity, and logic.

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Thought and Language

LEV SEMENOVICH VYGOTSKY

The *magnum opus* of an influential Soviet psychologist finally available in translation. Vygotsky's major contributions were his theory of concept formation and development of the other specifically human intellectual functions, and his experimental method of "double stimulation." With introduction by Jerome S. Bruner and appended comment by Jean Piaget.

Technological Progress in the Petroleum Refining Industry:

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JOHN L. ENOS

The history, with economic analysis, of innovations in petroleum cracking in America since 1913, describing the advances, their environment, and the men responsible for their adoption. The author attempts to measure the accrued value of this progress and shows how the profits were divided among inventors, companies, and consumers.

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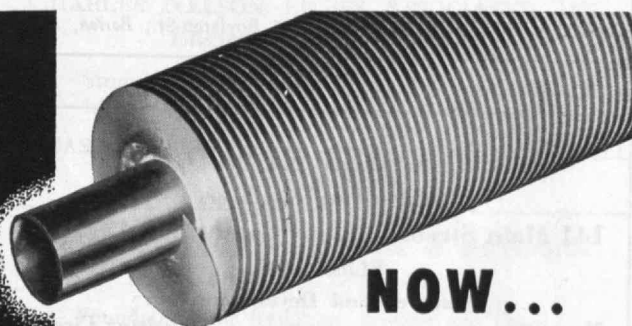
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Books

Historic Papers on Economics

HAVE you ever read William Jennings Bryan's *Cross of Gold* speech? Alexander Hamilton's *Report on Manufactures*? Calvin Coolidge's veto of agricultural price supports? These and other such documents are now available in a paperback book, *American Economic Policy Since 1789*, edited by William Letwin, Associate Professor of Industrial History at M.I.T. (Doubleday Anchor, \$1.45).

In his introductory essay, Professor Letwin discusses the forces and movements that helped to make American economic policy "exceedingly confused." Great debates, he thinks, make great and classic documents, and he has selected 29 of them for this volume.

Have You Seen These?

RECENT BOOKS likely to be of especial interest to M.I.T. Alumni include:

Field Theory Handbook, including co-ordinate systems differential equations and their solutions, by Professor Parry H. Moon, '27, of M.I.T. and Professor Domina Eberle Spencer, '39, of the University of Connecticut (Springer-Verlag, 1961, \$17.25).

From Theory to Practice in Soil Mechanics, selections from the writings of Karl Terzaghi, formerly professor in the M.I.T. Department of Civil Engineering; with a bibliography and contributions on his life and achievements prepared by L. Bjerrum, A. Casagrande, R. B. Peck, and A. W. Skempton, including accounts of his activities at M.I.T. as well as in many other parts of the world (John Wiley & Sons, 1960, \$12).

Shock and Vibration Handbook Library, edited by Cyril M. Harris, '45, and Charles E. Crede, '36 (McGraw-Hill Handbook Series, 1961; three volumes, \$47.50).

In the Periodicals

PROFESSOR Philip M. Morse and George F. Koster, '48, Associate Professor of Physics, contributed the leading article, entitled "Graduate Record vs. Achievements," to the August, 1961, issue of *Physics Today*. It dealt statistically with the records and accomplishments of doctoral Alumni in physics since 1931. . . . Professor Roland B. Greeley contributed the leading article, entitled "A City Planner Looks at the Urban Explosion," to the July, 1961, issue of the *Journal of the Boston Society of Civil Engineers*. In the same issue, David D. Jacobus, '30, described the survey made for the Cambridge Electron Accelerator. . . . L. F. Hickernell, '22, described "Cable Engineering, A Multi-discipline Technology," in the October, 1961, issue of *Electrical Engineering*. . . . Professor M. S. Livingston and W. A. Shurcliff described "The Cambridge Electron Accelerator" in the October 20, 1961, issue of *Science*. . . . The Lester Gardner Lecture on "Early Blind Flying," by J. H. Doolittle, '24, was featured in the October, 1961, issue of *Aerospace Engineering*.

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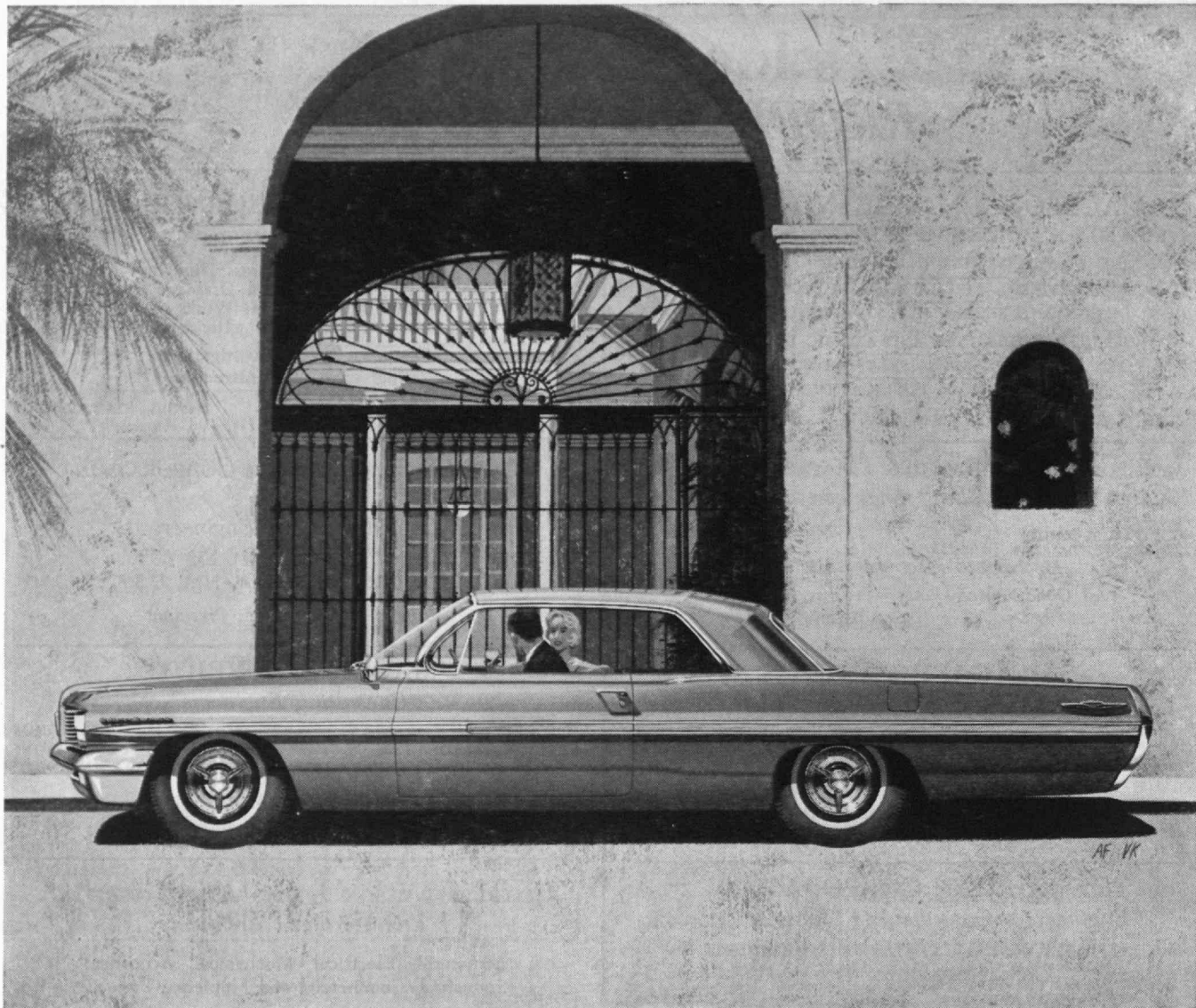
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Club News

Boston Alumni Hear President Stratton

The 1961-1962 program of the M.I.T. Club of Boston began with the dinner on National Alumni Night, October 19, featuring President Julius A. Stratton, '23, reporting on M.I.T.'s extensive building plans in the near future. Robert C. Dean, '26, reported current progress in the Boston area for the SCF. All present also heard the National Telephone Program: "M.I.T. 1961: The Voices of Technology."

Dwight C. Arnold, '27, presided at this meeting in Walker Memorial Hall and the guests at the head table included: Mrs. Dwight C. Arnold, Mrs. Robert C. Dean, '29, Mr. and Mrs. Samuel A. Groves, '34, Mr. and Mrs. Charles Hieken, '51, Pierre F. Lavedan, '20, Mr. and Mrs. John A. Long, '33, Mr. and Mrs. Earl P. Stevenson, '19, and Mrs. Julius A. Stratton.

Participants in the National Telephone Program attending this dinner included Professors Jerome C. Hunsaker, '12, Warren K. Lewis, '05, Samuel C. Prescott, '94, and Erwin H. Schell, '12.

The calendar of future events planned by the M.I.T. Club of Boston distributed at the October 19 meeting, listed a luncheon in the Union Oyster House on November 16 to be addressed by Elliott L. Richardson, former U.S. Attorney, and later events:

Thursday, December 14: luncheon, David G. Hoag, '46, Assistant Director of the M.I.T. Instrumentation Laboratory;

Thursday, January 18, 1962: luncheon, Earl P. Stevenson, '19, Chairman of the Board of Arthur D. Little Company;

Thursday, February 15: luncheon, Carl F. J. Overhage, Director of M.I.T.'s Lincoln Laboratory;

Thursday, March 15: luncheon, H. Guyford Stever, Head of two M.I.T. Departments;

Thursday, April 12: dinner at M.I.T. Faculty Club, Saville R. Davis, Managing Editor of the Christian Science Monitor;

Thursday, May 17: Robert C. Wood, M.I.T. Associate Professor of Political Science.

Alumni President Visits Fairfield County Club

The fall dinner meeting of the M.I.T. Club of Fairfield County was held October 19 at the Clam Box in Westport. During the first half of the evening we joined with M.I.T. Clubs throughout the country in listening to the closed circuit program, "The Voices of Technology." Our guest speaker, D. Reid Weedon, Jr., '41, Vice-president of Arthur D. Little, Inc., and President of the M.I.T. Alumni Association, discussed some of the newer teaching techniques being used at the Institute.—Randall Goff, '51, Secretary, R.F.D. 2, Goodhill Road, Weston, Conn.

Washington Club's Head Dies in Air Crash

The M.I.T. Club of Washington regrets to announce the sudden death of its president, William R. Ahrendt, '41. Mr. Ahrendt was an extremely successful and talented engineer and industrialist who recently accepted a position as visiting professor of electronics at the University of Peru. He died in an airplane crash in the Andes Mountains.

The opening meeting of the 1961-1962 season was the fall smoker held annually at the Potomac Boat Club. Buffet dinner, beer, and soda were consumed by all. John G. Beebe-Center, Jr., '56, showed a film on the first major vessel crossing, west to east, of the waterway north of Canada. Good fellowship and singing were accompanied by an able accordionist. The following officers were elected for the coming year: Sterling H. Iverson, '41, President; Ernest W. Reisner, '30, First Vice-president; William C. Howlett, '49, Second Vice-president; John G. Beebe-Center, Jr., '56, Secretary; W. Seldon Saunders, '57, Treasurer. Executive Committee members are: C. Ford Blanchard, '22, Michael K. Johns, '53, Frank G. Kear, '27, Thomas K. Meloy, '17, Robert W. Blake, Jr., '41, Paul M. Robinson, Jr., '44, Nicholas P. Stathis, '29, George R. Thompson, Jr., '53, Mrs. Sylvia L. Waller, '47, and Gilbert H. Lewis, '51.

Our next meeting, on October 19, featured Professor John G. Trump, '33, and the National Telephone Program from Cambridge, "M.I.T. 1961: The Voices of Technology."

The Executive Committee met October 2 to plan coming events. On December 28 will be the annual Christmas vacation luncheon for local M.I.T. undergraduates and for high school seniors interested in entering M.I.T. Robert Blake is directing the program for the lunch.

A modified form of by-laws will be written by a group under the leadership of Paul Robinson. Nicholas Stathis was appointed chairman of the membership committee with Sylvia Waller assisting. Additional meetings will be planned for February, April, and June. Speakers will be announced. We all look forward to another successful year.—Gilbert H. Lewis, '51, Secretary, 9914 Grayson Avenue, Silver Spring, Md.

Louisville Club Makes Dawson President

The M.I.T. Club of Kentucky has elected officers for the coming year: John L. Dawson, Jr., '44, President; Arthur M. King, '35, Vice-president; Howard D. Edwards, '45, Secretary, General Electric Appliance Park, Louisville, Ky.—John L. Dawson, Jr., '44, President, Dawson Lumber Company, Box 8305, Station E, 905 Magnolia Avenue, Louisville 8, Ky.

Miami's New President Is Scott Hoehn

A new slate of officers was presented to the M.I.T. Club of South Florida at a dinner meeting on May 16, 1961, at the San Juan Restaurant in Miami. New officers are: Scott J. Hoehn, '47, President; Bernard Ross, '37, Treasurer; and Irving Steinhardt, '48, Secretary. Following the dinner Dr. Ross gave an interesting talk on the relationship of color to health, followed by a lively and interesting question-and-answer session. Those attending were: Kenneth P. Armstrong, '10, Estus H. Magoon, '14, Heland J. Green, '20, Franklin B. Hunt, '20, William C. Kohl, '21, Edward I. Mandell, '21, Antonio H. Rodriguez, '21, H. H. Zornig, '23, John Sterner, '33, Sidney Mank, '37, Robert Nedbor, '37, John F. Michel, '47, Irving Steinhardt, '48, Phillip M. Johansen, '59, and Jorge Hecharte.

The club went outdoors on June 17 for a picnic at beautiful Greynolds Park in Miami. Those attending had charcoal steaks, baked potatoes, beer, and all the trimmings, followed by games, boating and hiking. Enjoying the fun with their families and guests were Thomas E. Mattson, '24, Vincent J. Dobert, '36, Harold I. Selleck, '43, Scott J. Hoehn, and Irving Steinhardt.—Irving Steinhardt, '48, Secretary, 804 Raymond Street, Miami Beach, Fla.

Harrisburg Concentrates On Second Century Fund

Plans are now under way in the Central Pennsylvania area to put the finishing touches on the Second Century Fund campaign. As of the last tally we still have a long way to go, but it is hoped that prior to the year's end this area will make a good showing. A forthcoming meeting should place added emphasis on this campaign.

Our group was saddened to hear of the death of Edison Powers, '39, X, in August. Mr. Powers was employed for quite a few years as section chief in the Physical Test Section of Armstrong Cork Company, Lancaster, Pa. His untimely death is a loss that will be felt by many of us.

Harold R. Spaans, '30, has been assigned to the Philadelphia office of Bell Telephone and is presently in the process of moving his family from Harrisburg to Philadelphia. Hal has been very active here in Harrisburg, both in community affairs and in the M.I.T. club, as well as the Educational Council. I am sure that everyone here who knows Hal is going to miss him. His job as chairman of the Educational Council was accepted by Robert K. Peterson, '48, who will try to fill the big shoes left by Hal.

Also appointed as a member of the Educational Council is John A. Morefield, Jr., '56. John will be covering the Enola, Cumberland Valley, Mechanicsburg, Middletown and Steelton-Highspire high schools, formerly covered by Bob Peterson. John, incidentally, recently became the father of a fine baby boy. Congratulations, John!—Robert K. Peterson, '48, Secretary, 566 Brentwater Road, Camp Hill, Pa.

Louis Levin Speaks At Boston Dinner Meeting

On Tuesday, October, 10, 1961, the Boston Stein Club held its 1961-1962 kickoff dinner meeting. Having recently returned from the International Scientific Conference at Bretton Woods, N. H., Louis Levin, Dean of Science and Associate Dean of Faculty at Brandeis University, discussed "Science and Progress."

Please reserve the following Stein Club meeting dates in 1962: January 16, March 13, May 3, and June 12, and bring new members to the meetings.

Buenos Aires Alumni Hear Robert Summers, '46

On Thursday, August 24, 1961, the M.I.T. Club of Buenos Aires met at the American Club for one of its regular dinners. While it might well have been sweltering in Boston or New York, we shall remind those in the Northern Hemisphere that Buenos Aires was enjoying one of its usually mild winter evenings.

A special guest at the dinner was Robert A. Summers, '46, who has been visiting Argentina. Dr. Summers, of Allied Research Associates, Inc., in Boston, delivered an informal after-dinner talk outlining the U.S. civilian space research program. He discussed the general organization of U.S. space research carried on largely by the National Aeronautics and Space Administration and covered several main topics: scientific satellites which explore communications, navigation, meteorology; lunar and interplanetary exploration; manned spaceflight; launch vehicles; and auxiliary power units and in-space propulsion. Dr. Summers emphasized the active participation of private enterprise in the U.S. national space program. To encourage the scientific community in South America, he suggested a U.S.-launched co-operative Latin-American satellite. An enthusiastic discussion followed the talk with the inevitable question of who is ahead in the "space race" and why!

The local members present at the dinner were: Roberto J. Ottonello, '22, Luciano A. Preloran, '22, Luis A. Igartua, '23, Antonio Marín, '38, Germán A. Frías, '40, Malcolm César Paradelo, '44, Ralph I. Gerber, '45, Pedro Vicien, '45, Oscar L. Briozzo, '46, Juan J. Ré, '46, Roberto Maidanik, '50, Gerardo R. A. Cahn, '53, Raúl V. Peláez, '56, Amílcar J. Romeo, '56, Federico J. Dumas, '59, J. H. Decanini, '60, and Guy de Poligny, '60.—Eduardo V. Oxenford, '45, Secretary, Las Heras 2738, Martinez FCGBM, Buenos Aires, Argentina, S. A.

San Francisco Elects Greatwood President

On July 19, 1961, another successful meeting was chalked up to the M.I.T. Club of Northern California. Planned by outgoing President, John D. Rittenhouse, '40, and Herman A. Pieczentkowski, '40, the meeting was held at the new Kaiser Center in Oakland so that more people in the Oakland-Berkeley area of the San Francisco Bay Region might attend. Professor Charles Stark Draper, '26, delivered an interesting talk regarding the

Deceased

CHARLES F. EVELETH, '95, July 9*
HENRY M. LOOMIS, '97, Aug. 17*
EZEKIEL C. SARGENT, '97, Sept. 28*
BURT R. RICKARDS, '99, Sept. 23*
F. WARD COBURN, '01, Aug. 7*
ALBERT L. GALUSHA, '01, Aug. 13*
WILL G. KELLEY, '01, June 21*
ASHTON PERSONS, '01*
FRANK P. HARRIS, '02, Sept. 19
FLETCHER H. BURKE, '05, July 22
ALBERT L. BURWELL, '07, Sept. 21*
LAURENCE WETMORE, '07, Aug. 6*
FRANCIS V. CAREY, '08, March 16
B. EDWIN HUTCHINSON, '09, Sept. 27*
ARTHUR H. LANGE, '09*
CHARLES H. MILLS, '12, April 8*
CLARENCE A. STEWART, '12, May*
WILLIAM S. WOLFE, '12, July 1*
YIANG Y. CHOW, '15, March 30*
JOHN R. FREEMAN, JR., '16, Sept. 2*
CHARLES T. BARNARD, '17, Nov., 1960
FREDERICK A. STEARNS, '17, Sept. 24*
RALPH SARGENT, '18, Aug. 25*
DANIEL L. STARR, '18, Oct. 1*
SUNG-SING KWAN, '19, Nov. 27, 1960
HARRY H. MARDOLIAN, '19, Sept. 12
LOUIS B. BENDER, '20, April 2*
HUGH P. DUFFILL, '20, Sept. 22*
BLYTHE M. REYNOLDS, '20, June 25*
IGOR N. ZAVARINE, '20, Aug. 20*
PAUL S. MURDOCK, '22, July 31*
THOMAS F. SHEERAN, '22, Aug. 31*
MICHAEL F. BOYLE, '23, Aug. 4*
WILBUR S. COLBY, '25, Sept. 17*
MARRON W. FORT, '26, Sept. 18*
JEROME F. DONOVAN, '27, Sept. 15*
NICHOLAS L. EASLY, '29, Aug. 13*
LEONARD D. CHRISTIE, JR., '31, Sept. 14
JOSE. A. TABUSH, '56, April 16*

nation's missiles and space program. Dr. Draper was introduced by Jack Hawkins of Lockheed's Sunnyvale, Calif., Missiles and Space Division.

A buffet supper was served and the following were elected officers: H. Royce Greatwood, '24, President; Lionel S. Galstaun, '34, and Roger Morse, '42, Vice-presidents; Martin D. Robbins, '56, Secretary-Treasurer; and Roger S. Borovoy, '56, Assistant Secretary-Treasurer.

This meeting concluded a highly successful year for the club. We have had four well attended meetings featuring as speakers Professors Bush-Brown, Padelord, and Draper and William C. Mentzer, Jr., '31.—Roger S. Borovoy, '56, Assistant Secretary-Treasurer, 30 Ord Court, San Francisco, Calif.; Martin D. Robbins, '56, Secretary-Treasurer, 2707 Benvenue Avenue, Berkeley 5, Calif.

Happy Birthday

Congratulations are in order during December for an alumnus due to celebrate his 90th anniversary; and to 3 and 13 Alumni about to turn, respectively, 85 and 80, listed below with birth dates.

December, 1871—MINARD T. BARBOUR, '93, on the 3rd.

December, 1876—PHILIP BURGESS, '99, on the 1st; HOWARD I. WOOD, '01, on the 2nd; and ADOLF E. PLACE, '03, on the 21st of December.

Class News

'94

With deep regret, we have just noted in the morning papers the announcement of the death of **James C. Kimberly** of Neenah, Wis. Jim has always been a loyal member of the class although he did not remain through the years and graduate with us. His whole business career has been with the Kimberly-Clark Corporation, which, I believe, was founded by his grandfather, and which has been of great significance in the paper industry as the originator of the type of paper now used so widely in the high-grade illustration sections of many newspapers. During his lifetime he was active in many posts in the company and was vice-president and director when he retired many years ago. It is pleasing to report that his eldest son is now the president of the Corporation and has also been elected as a term member of the M.I.T. Corporation. It is hoped that a later issue may have a more comprehensive account of our distinguished classmate who has just died at the age of 90.—**Samuel C. Prescott**, Room 16-317, M.I.T., Cambridge, Mass.

'95

At our annual meeting last June, **Alfred P. Sloan, Jr.** was re-elected president with great appreciation of his interest and help to M.I.T.

Our **Charles Frederic Eveleth**, who left us last July 9, was born August 12, 1872 at Newton Centre, Mass. On June 7, 1899, he married Francis Swift Todd. His daughter, Adeline Reed Eveleth (Smith College, '23), was born August 31, 1900, and is now Mrs. Harold Cabot of Ripley Road, Concord, Mass. Charlie was a Republican, Episcopalian, fond of hunting and fishing, and a six-footer who tipped the scales at 180 pounds. He entered M.I.T. in the fall of 1891 and was graduated with us in Course VI.

From May, 1898, to July, 1901, he was with Bramin, Dow and Company, Boston, engineers and contractors for steam heating plants; he worked in the erecting

December, 1881—HERBERT W. KENWAY, '05, on the 1st; ROBERT W. SEYMS, '06, on the 2nd; JOSEPH A. HARADEN, '04, on the 4th; ROLAND H. BALLOU, '04, on the 7th; PERCY G. HILL, '05, FRANK H. LANGWORTHY, '05, and JOHN R. MARSTON, '04, on the 8th; LEYLAND WHIPPLE, '04, on the 9th; E. SYKES GOODWIN, '07, on the 14th; PRINCE S. CROWELL, '05, on the 24th; RALPH E. IRWIN, '09, on the 25th; and CHARLES R. CARY, '04, and ROBERT R. JORDAN, '03, on the 26th.

and later in the engineering department. From July, 1901 to 1906, he was with French and Hubbard, consulting engineers on design of heating and ventilating systems and steam power plants; from 1906 to 1914 he was mechanical engineer for the School House Department of the City of Boston, in charge of design and construction of all heating, ventilating, and steam power plants; and from 1914 to 1916 he was mechanical engineer for Green and Wicks, architects, of Buffalo, N.Y., where he was in charge of design and construction of all steam and mechanical equipment. From 1916 to 1920 he was again with French and Hubbard, in Boston.—**Andrew D. Fuller**, Assistant Secretary, 120 Tremont Street, Boston, Mass.

'96

A class book that Mrs. **Henry A. Waterman** released was sent to **Charlie Hyde**, whose request was relayed from Nova Scotia.

Following is the second and last installment of the letter from **Bill Coolidge**, telling about his Scandinavian trip: "In Turku, our introduction to Finland, we were greatly impressed by the beautiful little Chapel of the Resurrection, often cited as an outstanding sample of ecclesiastical architecture. In Turku, we also visited the Traffic School for Children. In a public park, it occupied a small area covered by a network of narrow roads. The school was attended by young bicyclists and policed by traffic officers who corrected all failures to signal properly for turns made at intersections. One wondered if such training of children would not ultimately lead to fewer traffic casualties. Helsinki's railway station is a striking example of the work of Finland's great architect, Eero Saarinen (other examples are now to be seen in this country at M.I.T. and Idlewild). In Helsinki, we were also thrilled by Finland's great stadium, seating 70,000, and by the nearby bronze statue of Paavo Nurmi. In Finland, most buildings are new, replacing those destroyed in World War II. Instead of many small dwellings, most of the new housing is in the form of large apartment buildings.

"Having read about Nomadic Lapps and their reindeer herds, whose wanderings the Lapps follow from place to place, we were on our travels in Lapland, always looking for reindeer; but until one day before leaving Lapland, we had seen only a few tame ones. On the day in question, however, our eyes were gladdened by the thrilling sight of a herd of an estimated 1000 reindeer. Not only this, but upon being startled, we saw them suddenly begin to circle around in a counter-clockwise direction, and we were told (believe it or not) that it is always counter-clockwise.

"At Nordkapp, Sweden, North Latitude 71 degrees, on July 18; I photographed the sun at midnight. With kindest regards and best wishes to you and Henry and all of '96.—Sincerely, **Bill Coolidge**."—**James M. Driscoll**, Secretary,

129 Walnut Street, Brookline 46, Mass.; **Henry R. Hedge**, Assistant Secretary, 105 Rockwood Street, Brookline 46, Mass.

'97

Our Class News in the November Review contained a letter from our classmate, "**Zeke**" **Sargent** of Quincy, one member we rarely have heard from. We regret to say that about one month before the issue actually reached you the following appeared in the Boston Herald of September 29: "Ezekiel C. Sargent, 87, of 149 Putnam Street, Quincy, commissioner of public works in Quincy in the '30s, died yesterday at Quincy Hospital. A resident of Quincy for 75 years, he was a member of Rural Lodge A.F. & A.M. for 50 years, a life member of St. Stephen's Royal Arch Chapter, and an honorary member of the Quincy Historical Society."

Our retired shipbuilder, **Bill Binley**, 156 High Street, Exeter, N.H., who for many years was an executive of the Bethlehem, Fore River, Mass., plant, has written the following regarding his extended trip to Europe last winter: "Last fall I found myself living alone for the first time in almost 60 years, so I decided to visit France for the winter. Time was not of the essence, so I sailed from Boston in November on a new Greek liner for London via Quebec. After short trips about London and a visit to distant relatives in Leicestershire, I left for Paris. I found a comfortable room in the Latin Quarter.

"Unfortunately, I developed a bad cold, and as the weather in Paris is not of the best in the winter months, I was easily persuaded by a doctor to go south for more sunshine. I spent two months in Nice on the Riviera. I found a pleasant room in a small French hotel where nobody spoke English, but I could make myself understood with my limited knowledge of French. I was able to sit out in the sun almost every day on the famous Promenade des Anglais. I had wanted to visit Berlin, but I decided it was no place to go with a cold in the wintertime. However, I made several trips into northern Italy to Venice, Turin, and Milan and had the pleasure of meeting one of my sons and his wife in Florence while they were touring Europe. I can highly recommend Nice. There are some most interesting side trips to be taken from there such as Monte Carlo, Cannes, Venice, St. Tropez, as well as the Italian Riviera. I sailed for New York the last of March from Cannes on a new Italian liner, the Leonardo da Vinci. It was not much fun being alone, but I made the best of it. The weather was mild in Nice, and I know I escaped a bad winter in New England."

Our circular letter of last summer also produced the following from another graduate of Course XIII, Commander **Frederick A. Hunnewell**, 2122 Massachusetts Avenue, N.W., Washington, D.C., enclosing an obituary of **Henry M. Loomis**, Course V, which appeared in the Washington Evening Star on August 18. Both classmates have been long-time residents of our nation's capital. "Your circu-

lar letter of July, 1961 is well prepared and an invitation for interesting reports of the activities (if any!) of the veterans of '97. As far as the Hunnewell's are concerned, it has been a quiet season; no cruise to foreign ports this season.

"News not so good is the enclosed clipping which Mrs. Loomis gave me today. The Loomis's were good friends for many years, and we shall miss Harry very much—used to see him at the Cosmos Club now and then. Best regards, Hunnewell." From the Washington Evening Star: "Henry M. Loomis, 86, a retired chemist and a Washington resident since 1913, died Thursday at the Washington Hospital Center after a brief illness. Mr. Loomis was born in Yokohama, Japan, the son of missionaries who were among the first admitted to the country. He returned to the United States for his education and was graduated from the Massachusetts Institute of Technology in 1897 with a degree in chemistry.

"Mr. Loomis served with the United States Bureau of Chemistry as a food and drug inspector from 1907 to 1916, and lived in many cities including Galveston, Texas; San Francisco; and Seattle. He was transferred to Washington in 1913. After 1916 he was employed by the National Canners Association, serving as head of the certified food inspection service until 1921, and the head of the consumer claims division until his retirement in 1946. He lived at 2853 Ontario Road, N.W. He leaves his wife, the former Eleanor Wallace of the home address; two sisters, Miss Clara D. Loomis of California, and Mrs. J. Everett Frame of Princeton, N.J.; and a brother, Roger S. Loomis of New York City."—**John P. Ilsley**, Secretary-Treasurer, 26 Columbine Road, Milton 87, Mass.

'98

Through the courtesy of George R. Wadleigh, '97, we have received a picture which is historically interesting. It is entitled "Architectural Students at Tech," and appears to have been taken at about the time of our graduation. We can readily identify many of the classmates shown in the picture, especially those who are still living. Among these latter, we may mention: Donald N. Alexander, Eva Crane (Mrs. Morrill), Arthur S. Keene, Edmund C. Little and Gorham P. Stevens.

If you will consult the booklet, prepared by the late **Arthur Blanchard**, entitled "Class of '98, 25th Anniversary, 1923," you will find a write-up of the 25th and the achievements of classmates to date. If, further, you will consult the booklet, prepared by the late **Lester Gardner**, entitled "Class of 1898, M.I.T. Golden Anniversary, 1948," and especially the group pictures and identifying columns contained on pages 33-35, you may be able to pick out these classmates after 50 years. However, in the Golden Anniversary booklet and the group pictures, you will not be able to pick out **Gorham P. Stevens**, a very prominent member of the class. The reason for this and a brief statement of his activities and accomplish-

ments is contained in the following statement: "Our one classmate who has lived abroad for many years is Gorham P. Stevens, Course IV. Recently he received distinguished honors. In December 1960, he received the first medal issued by the American Academy in Rome for 'distinguished services to the Academy.' He was director of the Rome Academy from 1911 to 1932. In February, 1961, the King of Greece made him a 'Commander of the Order of King George I of Greece.' This is a high Greek order. Gorham was director of the American School of Classical Studies, Athens, from 1932 to 1941. Since that time he has had emeritus status as Honorary Architect but is still active in lecturing and as an author. Incidentally these decorations are in addition to two others, 'Commander de l'Ordre du Phénix, Greece' and 'Commander Crown of Italy,' made in past years.

"This American School, Athens, has had a leading part, since 1931, in the excavation and restoration of the Ancient Agora (The Gathering Place) which was the center of the civic, social and commercial life of Athens from about the sixth century B.C. to 267 A.D. The Agora was an open square, some six acres in extent, traversed by the principal streets of the city. It was surrounded by public buildings. Several millions of dollars have been expended for restoration. A museum has been constructed and contains numerous display cases of many articles dating back to the 'Bronze Age' (3000-1100 B.C.); the 'Early Iron Age' (10-7th Century B.C.); 'Household Articles' (7-4th Century B.C.); 'Roman Articles' (3rd Century B.C.), etc. Our classmates may recollect Class Letters on this subject in 1951 and 1955. We will note that **George Cottle**, **Ed Chapin** and **Dan Ederly** were in Athens about these dates and had the pleasure of visiting the Agora, and with the descriptions and clarifications by Gorham, we gained some knowledge of what archaeological undertakings are for. So, congratulations to our classmate, Gorham Phillips Stevens."

We have received the following bit of news from our assistant secretary, **Frederic A. Jones**. Mrs. Harold W. (Audrey) Jones, the daughter of our assistant secretary, will be the delegate from the Springfield, Mass., area of the United Church Women (U.C.W.) of the National Council of Churches at an assembly to be held in Miami, Fla., October 9-12. Audrey will fly, but as her husband will be teaching in Springfield and cannot leave, her father, Fred, will be her companion at the assembly. However, as an old railroad man, he will go by train. They both plan to get some daily ocean bathing while there. Thanks Fred, for the information and good luck. It will be remembered that Audrey attended the luncheon on Alumni Day, 1960 with her father; and later in the year with her husband she enjoyed a trip to Europe, which she wrote up for our Class News.

As this is the issue of The Technology Review just prior to Christmas, '61, we will wish all the boys and girls of '98 and their relatives, a very Merry Christmas and a very Happy New Year.—**Edward S. Chapin**, Secretary, 2 Gregory Street,

Marblehead, Mass.; **Frederic A. Jones**, Assistant Secretary, 286 Chestnut Hill Avenue, Brighton 35, Mass.

'99

After many years of faithful service as secretary and class agent, **Burt R. Rickards** died September 23, 1961 at the age of 84. He was director of the Boston Health Department Biological Laboratories; later chief of the Massachusetts State Department of Health Laboratories; from 1910-1912 associate professor of municipal and sanitary dairying at the University of Illinois; and, while director of the biological department of the Eli Lilly Company, he organized their anti-toxin and vaccine laboratories. In 1917-1947 he was director of the Division of Public Health Education of New York State and inaugurated radio talks and the use of motion pictures to interest the public in promoting good health and in avoiding accidents. During 1904-1908 he was editor of the American Journal of Public Health and the Journal of the Massachusetts Association of Boards of Health. He was a life member and fellow of the American Public Health Association; member, Massachusetts Public Health Association; first president of the Sigma Xi Association of Albany; member of Delta Omega; first president of the Albany Tech Club; M.I.T. honorary secretary for Albany for 25 years; and member of the Ancient City Lodge of A.F. and A.M. in Albany. Burt's son **Leighton R. Rickards**, '33, and four grandchildren live in Melbourne, Fla.

John B. Ferguson of Hagerstown, Md., died May 2. John will be remembered as the efficient adjutant of our freshman battalion who helped in our winning the exhibition drill against Brown University in the old Mechanics Building, now only a nostalgic memory. John was president-treasurer of J. B. Ferguson and Company, Inc., engineering consultants in Hagerstown. At the June reunion, our class had a better than average attendance of the older classes: **William A. Kinsman**, **Miles S. Sherrill**, **Etheredge Walker** from San Francisco, **Hervey and Mrs. Skinner**, **George and Mrs. Glover**, **Carroll and Mrs. Brown**, **Harry K. White**, **Percy W. Witherell**. **Harry K. White** is one of the ten honorary members of the M.I.T. Club of New York and is active in promoting its interests. . . **Frederick W. Grover** is enjoying his retirement by driving around to places of past activities.—**Percy W. Witherell**, Assistant Secretary, 84 Prince Street, Jamaica Plain, Mass.

'01

Owing to the fact that the time notice for the November notes was by a letter which evidently slipped by me, and no post card came as is usual, I missed the call for the November notes. Consequently the first 1901 news will be in the December issue. I have first to record several deaths in our class:

Will G. Kelley, VI, of Santa Barbara, Calif., and formerly of Winnetka, Ill., died on June 21 after a short illness. He was 82 and had lived in Winnetka for 36 years. He was an electrical engineer for the Commonwealth Edison Company of Chicago. He retired in 1948 after 46 years of service. He held the rank of Fellow in the American Institute of Electrical Engineers; he is survived by his widow, two sons, a daughter and five grandchildren. His widow made a substantial gift to the class in his memory.

. . . **Ashton Persons**, V, 82 years old, was a retired head chemist of the American Thread Company of Willimantic, Conn. He came to Willimantic in 1902 and retired about 15 years ago. He was a Mason. He leaves his wife and three grandchildren. . . **F. Ward Coburn**, X, of Birdsboro, Pa., was former president of the E. & G. Brooke Iron Company, Birdsboro. He died on August 7 in a nursing home. He became associated with the Brooke Company in 1924 and subsequently became president. He was a member of various clubs and societies. He is survived by his widow, two sons, a daughter, ten grandchildren and one great-grandchild. . . **Albert L. Galusha**, II, of Verona, N.J., died suddenly on August 13 while attending church. He was 83. He was an inventor and was prominent in the gas producer industry. He held more than 50 patents. He received a B.S. degree from Dartmouth in 1899 and an S.B. from M.I.T. in 1901. He leaves his wife, a daughter, a son, eight grandchildren and two great-grandchildren. . . We all remember **Langdon Pearse**, a sanitary engineer in Chicago who spoke to us at our 1956 reunion. His wife, Eleanor, died in Evanston Hospital in August. She attended one or more of our reunions and was much interested in the class.

I am going to devote the rest of this month's notes to some interesting information about **Arthur Hayden**, I, one of our very distinguished classmates from Maryland. His name has already appeared in these notes in connection with his design of the rigid frame bridge. I am going to quote from two of his letters to me written last June when he was 87 years old: "One of the nicest things that ever happened to me took place at the championship crew races at Worcester, Mass., on May 20. I was called into the officials' stand and the Clark University crew presented me with two Clark University crew shirts because of my long time enthusiasm for this sport. A short time later I received notice from the Clark University Rowing Club that I had been unanimously elected a "Distinguished Member" of the club. I am now an honorary crew man with a crew shirt. What means so much to me is that such a fine bunch of young men as the Clark University crew saw fit to honor me. What for? Just because I am an enthusiastic 'fan' and have attended so many crew races in my old age. However that may be, just to be honored by such a fine set of young men was one of the nicest things that ever happened to me." . . . I have not forgotten to report to you about our reunion last June. This will

appear in the next issue of The Review.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N. H.

'03

Once more comes the call from our Alumni Office for news of interest from our still surprisingly large number of classmates, eager for their 60th Reunion. Let us from near and afar give serious thought to planning to attend and witness the present unbelievable laboratories for atomic, chemical and aeronautical research—a New Vista far from former "assez d'espace."

George E. Kershaw, XIII, still resides at 43 Fairwood Road, Madison, N.J. . . . **Paul R. Parker**, XIII, has as his winter address 57 High Street, Kennebunk, Maine.

Now for some early statistics from the 1903 "Technique": Average age, 21.3 plus years; Average weight, 146.5 pounds; Average height, 5 feet 9 inches; Rising hour, 7:35 A.M.; Retiring hour, 11:21 P.M.

Other questions asked were: Do you vote? No: 63.1 per cent; Yes: 36.9 per cent. Who is your favorite professor? In their ranking order: Professor Merrill, Harry Clifford, Dr. Wendell, and Professor Burton. What is the cost of your college career? Average: \$2,417. Students living at home: \$1,970. Students living away from home: \$2,984. What is the location of your future home? U.S.A.: 73 per cent; Indifferent: 19 per cent; Foreign: 6 per cent. Did you attend lectures out of your course? No: 57.3 per cent; Yes: 30.7 per cent. Occasionally: 12 per cent. Do you work during the summer? Yes: 65 per cent. No: 35 per cent. A comment, "It can't be called work after tackling Tech."

How many times have you consulted your adviser? Average: .66 times; Never: 74 per cent; Once or more: 26 per cent. Do you have time to read the daily papers? Yes: 105; No: 32; Occasionally, 27; and Sundays only 8 (comments were that they are not sensational enough). One man reads Arlo's books.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

This is to send Christmas Greetings and to say that since we have no news we have no notes.—**Carle R. Hayward**, Secretary, Room 35-304, M.I.T., Cambridge; **Eugene H. Russell, Jr.**, Treasurer, 82 Devonshire Street, Boston, Mass.

'05

The only Class News received since writing copy for the November issue is contained in a letter from one of the sons of **Vicente Molina**, which I am using,

as it supplements the brief notice of his death as mentioned in that issue. I had not realized it, but he left M.I.T. in 1905, entered Dartmouth and obtained both his B.S. in 1906 and his civil engineering degree in 1907. He worked for Ferrocarriles Unidos de Yucatan (The State of Yucutan Railroads Company) until 1915, then due to unsettled conditions in Mexico he worked in Havana, Cuba, and New York City, returning to Merida, Mexico in 1921. In 1947 he retired to the administration of his properties in Merida, where he died on July 18, 1961. His five sons received engineering degrees at the Instituto Tecnológico de Monterrey "which is considered here as the most outstanding engineering school in Mexico and an approach to M.I.T."

Bill and **Alice Spalding** were in Conway, N.H., and Fryeburg, Maine, in September. **Hub Kenway** and I tried to connect with them without success. Better luck next year, Bill. The Spaldings are selling their Ontario property, and will live in Norfolk, Va. **Dean ("C.D.") Klahr** and **Helen** were in Northern N.H. recently, but again we failed to connect as their vacation, principally to see the beautiful foliage, was limited. Vacation? C.D. retired some years ago, but is a very busy person. We can assume that all four are in good health. . . . That's all. There isn't any more. In deciding whether your secretary is earning his salary, you'll have to add November and December and divide by two. Also remember that I cannot manufacture news. I tried it once (implying scandal) and almost lost my job. However you are all too old for even a suspicion of scandal. Just think, the following men became octogenarians in 1961: **Abbott**, **Barnes**, **Bender**, **P. G. Hill**, **Kenway**, **Joslin**, **Prentiss**, **Schmeisser**, **Seaver**, and **Wells**. No surprise, because you were (and are) their contemporaries. Your comments on how it feels are invited.—**Fred W. Goldthwait**, Secretary and Treasurer, Box 32, Center Sandwich, N.H.; **Gilbert S. Tower**, Assistant Secretary and Treasurer, 35 North Main Street, Cohasset, Mass.

'06

One of the interesting and welcome letters received before our 55th was a long one from **Sidney T. Carr**, VI, who with Mrs. Carr was then in Kailua, Hawaii, visiting their two sons, **Gilbert** and **Faxon**, and five of their six grandchildren, **Gilbert's** older son being in California at the time. Sid first landed in Honolulu five or six years after graduation and was there for about four years as sales engineer with the Hawaiian Electric Company, Ltd. Then after a few years in Cuba with **Zaldo Martinez Company** and a short hitch with **Central Hudson G & E Company** in Poughkeepsie, he moved west to San Fran with the **Petroleum Rectifying Company**. But The Islands evidently had a strong appeal for Sid, and in the early twenties he was back with the **Hawaiian Electric Company** and stayed with them until he re-

tired in 1946, then coming back to the states, first at Los Altos and since 1950 at Menlo Park, Calif.

Sid allowed that he had at last succumbed to my "frantic appeals in the Class News, so will try to make up for lost time since I attended our 50th Reunion." A slight stroke in 1959 was not serious; Sid was out of the hospital in six days, and is sticking to his diet "more or less." He is back again to a happy retired life with no particular hobbies,—except that he keeps busy gardening, going to baseball games when the Giants play in Candlestick Park in San Fran, taking auto trips up the Redwood Highway to Oregon or south to Carmel or L.A., playing a weekly bridge game with other retired guys, and attending some cocktail and dinner parties, dinner meetings or lunches of the M.I.T. Club of Northern California. Another activity is his membership in a men's club called SIRS (Seniors In Retirement) which meets every month in San Mateo for lunch and a talk. Only two years old, the club has a limited membership of 400 and covers a 50-mile strip south from San Fran to San Jose. Sid tells of a notable event at the San Francisco International Airbase last February when United Airlines put on a dinner at its maintenance base there. Sid had a stag party of six local friends, as Mrs. Carr was hospitalized, recovering from a successful operation. After dinner the superintendent of the base, **W. C. Mentzer, Jr.**, ('31, XVI) gave a talk about the operations, and then the 180 guests in groups of 10 or 12 were guided through the piston and jet plants, fuselage and instrument divisions—the latter being air-conditioned to keep temperature and humidity under control. That tour must have been an eye-opener!

When the Carrs flew out last March it was in a jet and took 4-and-a-half hours to cover the 2,200 miles. On two previous trips, in '53 and '55, it took over nine hours in piston planes! That seems to emphasize the contrast Sid mentions of Hawaii today as compared to "what it was 50 years ago when I first came here," and he continues at length to detail some of the changes. Incidentally, I had clipped two articles by **Sylvia Porter** that appeared about the time I heard from Sid, that tied in with his examples of fabulous growth and size. She said, "The future of our newest, fabulously beautiful, alluring 50th state of Hawaii is up and up to new peaks," and told of countless thousands of Americans from the mainland who have bought and are buying a "piece of paradise" for a future home at "prices ranging from \$1 a square foot to \$43,000 an acre." Sidney wanted to be remembered to all his old pals, especially **Cy Young**, "Kimu" **Kidder**, **Stew Coey**, **Abe Sherman**, **Henry Darling**, and expressed his regret at being unable to attend our 55th. "Aloha nui Kakou."

Reunion also engendered some correspondence with, and information about, another retired classmate,—**Colonel William Couper** who was with us junior and senior years, graduating in Course I; his thesis with **George W. Burpee**, I, was—

"A Study of the Failures of Concrete Structures." Bill was born in Norfolk, Va., on November 16, 1884, and was graduated from the Virginia Military Institute in 1904, receiving a C.E. degree in 1926. From 1906 to 1907 he was with the Pennsylvania Railroad, first as secretary of the Board of Engineers in charge of construction of the New York tunnels and terminal, then in various other positions of responsibility, leaving to enter the service as a major in the Quartermaster Corps in June, 1917. He soon became a lieutenant colonel, and was active in the construction of several camps, cantonments, on boat contracts, etc.; later in charge of disposal of surplus material and equipment. For a time he was assistant manager, Associated General Contractors of America, then manager of the American Construction Council in Washington in 1922 (when he was one of President Harding's consultants), becoming the business executive of the Veterans' Bureau in Perryville, Md.

By 1925 Bill was back at his alma mater, V.M.I., as executive officer, and later he became its historiographer, retiring in 1955. In 1920 he had been asked to prepare a long range plan for the development of V.M.I. and that master plan has been carried out through the years with little or no change, when as consultant, he had a hand in the construction of several new buildings and the remodeling of others. He is the author of several histories, including a four volume record of V.M.I., and has compiled a complete file of all its graduates. Bill writes: "Does M.I.T. have a personal file of its graduates? The F.B.I. says the best of its kind is at V.M.I., and it is based on the dumb idea that anybody all over the world is supposed to send in anything he or she sees in print." Bill has held office in several local and national societies; see "Who's Who in the South and Southwest," and besides the histories has written numerous papers and articles, two of which he kindly sent to me, together with two booklets descriptive of the Virginia Military Institute, which was founded way back in 1839.

The Big Day in the life of William Couper, or at least one of the biggest, came on May 15, 1961, when V.M.I. paid tribute to his activities on its behalf, his ability, and his loyalty, at the traditional ceremonies on New Market Day in the auditorium of Preston Hall, the library. The Honorable James S. Easley, a classmate, opened his remarks by saying: "My duty today, which I assure you is a pleasant one, is to present to V.M.I. an oil portrait of Colonel William Couper to commemorate the many and great services he has rendered to this beloved school, which go far beyond his calls of duty and are expressions of his love for his alma mater," and ended by saying, "I therefore present this portrait to be hung here in V.M.I.'s Valhalla beside the other great men whose portraits are already here." In the Rockbridge County News of May 18 appears a copy of the portrait and a picture of his 11-year-old granddaughter, Miss Mary Couper, who cut the ribbon at the unveiling of the portrait. Also present were other members

of the Colonel's family, Dr. and Mrs. J. L. Couper and their two other children, of Tenafly, N.J., also Mr. and Mrs. N. Dudley Johnson (Virginia) of New York. In his long letter early in June telling why he couldn't get to our reunion, Bill mentioned several Tech classmates: **George Burpee**, of course; Captain **Gatewood** whom he had known since boyhood; **George Hobson** whom he had lived with for a time in N.Y.; **Jim Orme**, who was a cadet with him at V.M.I. and with whom he roomed while at Tech; **Harold Beers**, and the now deceased **Avedis M. Chuchian** and **Clarence E. Carter**. He recalled that someone once asked his daughter where he went to school and she said V.M.I.T., which seems to be a whole volume in four letters! He concluded his letter by reminding me that he was present in 1946 and "will join that other fellow who says he is coming in 1966. My best to all the 1906 clan." In this account I have tried to do justice to Colonel William Couper's outstanding career while keeping in mind the space limitations for Class News, so much that might be of interest has, regretfully, been omitted.

Having visited awhile on Cape Cod and around Boston before and during reunion, Mary and **Harry V. Fletcher, II**, then spent several weeks in Portland, Maine, Harry's old home. While there Harry and **Gene Fogg** had a visit with **Henry Darling** at Wiscasset. The Fletchers evidently circled through Canada on the way home as we had a card (from Jamestown, N.Y.) of the Famous Rock Garden in Hamilton, Ontario. . . . A card from **Carleton M. Emerson, II**, told of his stopover for a couple weeks in Braintree with his sisters and a brother, en route to West Danville, Vt., where he spends the summer. While Marion and I were visiting long-time friends in New Rochelle in September, we talked with **Stod (Dr. Oscar S.) Pulman** by phone to White Plains and were glad to learn that he and Etta keep well and busy, though as he says, not as active as they used to be. . . . **John F. Norton, V**, and Margaret spent the late spring and summer in Hanover, N.H. Jack wrote to express his regret at being unable to attend reunion as he had hoped, sending his best wishes for a successful one, adding that they expected to be back in Tryon in the autumn. . . . **William G. Abbott, Jr., VI**, had planned to attend the reunion but several conflicting dates and anniversaries prevented him, although he expected to attend Alumni Day. In fact, he had his tickets, when he says that on June 1 "some particularly vicious bugs jumped me," and he completed his recovery at their summer place just off the beach at West Falmouth, where Bill says the latch string is always out and sent his regards to those who were more fortunate and made our 55th. Had a phone chat back in October with **Jim**—he had had an uneventful summer mostly at home—and also tried then to check up on Bertha and **E. Sherman Chase**, but they were probably away attending one of his numerous association meetings and conferences. More excerpts from letters and more careers next month, so stay tuned to this

station. While typing these notes in mid-October, with the fall foliage glorious all around us, Marion dragged me away to see, and hear, Bing Crosby and Danny Kaye in "White Christmas," so-o- I'm dreaming of a white Christmas!!! and singing "Noel."—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

'07

While spending a few days on the Cape during September, your secretary and his wife called on **Milt MacGregor** at his home in Brewster and found Milt busy mowing a large lawn. He invited us in to meet Mrs. MacGregor, and we spent some time reviewing '07 matters and discussing, in particular, our grandchildren. I learned that Milt again climbed Mt. Washington this summer and quote from a news item in "The Cape Codder" for September 7, 1961: "Milton MacGregor recently climbed Mt. Washington with his daughter and family, Reverend and Mrs. Charles Crooker, children Connie and Charles. This year is the 50th anniversary of the first time he climbed the mountain. The climb this year was also in celebration of Mr. MacGregor's 77th year of life. His children and grandchildren presented him with a pin in the form of a rucksack, ice axe, and climbing rope."

While at the Cape I also went to the Oyster Harbors Club and had lunch with Don Church and checked up on the dates for our 55th Reunion, which is to be held in less than eight months from now; 1907 will meet at Oyster Harbors on Friday, June 8, for dinner and remain until Sunday, June 10. It was expected that we would share the club with the 25-year Class of 1937. Instead, the 35-year Class of 1927 will hold their reunion with us. Start now to make your plans to be at the 55th Reunion of 1907.

A letter from Wade L. Wetmore, '02, told of the death of his brother Laurence on August 6, 1961. **Laurence Wetmore** entered M.I.T. with the class of '07 from Essex, Mass. He took Course II and did his thesis with **Louis A. Freedman**. Since graduation, we have had very little contact with him. He has not attended any of our Class Reunions or the Alumni Day in Boston. Following graduation, he was employed at the U.S. Arsenal in Watertown. He was then with the Waterbury Tool Company in Connecticut, specializing in the design, installation, and testing of marine equipment, such as the turret turning and steering mechanism of war ships. In Akron, Ohio, Laurence was a special investigator for the Goodyear Tire and Rubber Company and the inventor of several valuable patents. In 1927 he resigned because of impaired health and lived very quietly until the opening of World War II. During the war he was employed as an engineer by the Pacific Bridge Company and the Todd-Pacific Shipyards Corporation on ship construction and repair at their shipyards in Alameda, Calif. Since the end of the war, he has been retired and lived with

his brother at 1732 Broadway, Alameda, Calif.

I recently received a letter from John Burwell notifying the class of the death of his father, **Albert L. Burwell** on September 21, 1961, at Norman, Okla. Bert was graduated with '07 in Course V and for many years was with the Oklahoma Geological Survey. He never attended any of the Class Reunions or replied to any of the class letters for information. Perhaps some of you '07 men can furnish more detailed information to include in his page of the '07 records. . . . Have you given to the M.I.T. Alumni Fund? Its programs need your continued help.—**Phil Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville 60, Mass.

'08

Our second dinner meeting of the 1961-62 season will be held at the M.I.T. Faculty Club, 50 Memorial Drive, Cambridge, Mass., on Wednesday, January 10, 1962, at 6 P.M. Ladies are invited. Try to join us, won't you?

We are very sorry to report that **Leslie Ellis** found it desirable to resign as treasurer and assistant secretary of the class. He has done a wonderful job since he took over following the passing of **Linc Mayo**. The sincere thanks of the class is due Les and Helen. **Joe Wattles**, our representative on the Alumni Council, has agreed to serve as treasurer and assistant secretary. Alumni Fund time is here again. Have you made your gift? If not, please do it soon. How about some news of yourself or classmates you saw during the summer? A note or even a card would be much appreciated. With the holiday season approaching, may we wish you all a very Merry Christmas and a Happy New Year.—**H. Leston Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles**, Treasurer and Assistant Secretary, 26 Bullard Road, Weston 93, Mass.

'09

Francis Loud, VI, received the following letter from **Leon Healy**, who is a consultant chemist and engineer in Milwaukee: "Please forgive me for not writing sooner and complying with your request for class news. I think that was a good suggestion made at the class dinner that members of '09 send in news items from time to time relative to their whereabouts and doings. Ruth and I greatly enjoyed the Alumni Day activities and especially meeting other classmates. We had driven from Milwaukee by auto and after our stay in Boston returned home by way of the Green and White Mountains of northern New England; northern New York state and the Thousand Islands and thence back to Milwaukee.

"I have been in the consulting business for the past 30 years, specializing in rub-

ber, adhesives, paper conversion products and automotive parts. Until a few years ago, I spent considerable time in Texas, commuting by airplane every month. But at present I am confining my efforts nearer home, mostly in Wisconsin, Illinois, and Minnesota. Both Ruth and I are from New England but have been very happy here in Milwaukee, a beautiful city of parks, beaches and individual homes. We established our home on the shore of beautiful Lake Michigan overlooking a small boat harbor for pleasure sailboats and cruisers. I have always enjoyed boating so have made good use of this harbor and yacht club. We have three children and nine grandchildren. Our two eldest, Virginia and Muriel, each won a scholarship to the University of Wisconsin. Virginia was graduated in home economics and Muriel as a physical education instructor. Our youngest, Jim, also was graduated from Wisconsin as a chemical engineer. He was also on the varsity crew and was fortunate to be a stroke in the crew which won the national interscholastic race a few years ago and brought the cup to the Midwest for the first time. Last year Jim received his master's degree in chemical engineering from Akron University where he has been specializing in high polymers. For recreation I am still enjoying my boats and the grandchildren. I hope this finds you quite well and with all best wishes, Sincerely, Leon."

Francis also states: "Last Thursday (September 28) I had a pleasant visit with **Harold Stewart**, VI. We had lunch together at Smith House and spent the afternoon looking around and taking pictures at M.I.T. He and his wife were visiting relatives in Milton. He divides his time between his two homes in Rochester and at Lake Conesus in New York with trips to Florida and the West Indies or elsewhere interspersed."

Molly sent us a letter containing a clipping from the New York Times of September 29 telling of the death of another of our classmates. The clipping, which was the equivalent of well over half a column, told of the death of **B. Edwin Hutchinson**, III, an excellent photograph of him being included. He died September 27 at the age of 72 at his home in Grosse Pointe, Mich., after suffering a heart attack. He was a native of Chicago and attended school there before entering the Institute. While there he served as campus correspondent for the Boston Globe. After leaving the Institute he returned to Chicago to work for the Grand Crossing Tack Company, owned by his father. He joined the Blair Open Hearth Furnace Company in London and rose rapidly, becoming chief engineer at the age of 24. He then returned to America to become vice-president and sales manager. In the years that followed he returned to his father's firm to become assistant to the president; joined the Cromwell Steel Company of Chicago; then Ernst and Ernst, public accountants; and the American Writing Paper Company in Holyoke, Mass. In 1921 he became an associate of the late Walter P. Chrysler in the Maxwell Corporation. When the Chrysler Company was being organized,

he visited numerous banks and finance companies in New York to obtain support for the venture, and his financial genius helped guide Chrysler from a struggling young concern to one of the top three companies of the automobile industry. He served as director, vice-president and treasurer of the company, as chairman of the Plymouth Motor Corporation, and as a vice-president of both the DeSoto Motor Corporation and the Dodge Brothers Corporation. He was a former director of the National Association of Manufacturers and served as one of six regional vice-presidents from 1945-49, and as regional vice-president in 1944. He was a member of the Industrial Mobilization Committee in 1950-51, director of the National Bank of Detroit, and vice-president of the general board of the National Council of Churches of Christ. After his retirement in 1954, he was active in civic affairs. As we all know, for years he served the Institute with distinction and contributed much to its advancement, being appointed a life member of the Corporation on July 6, 1936. He was the 48th president of the Alumni Association in 1941-42. We in the class know of the valuable assistance and advice which he rendered the class and its officers in the matter of raising both class funds and our 50th Anniversary Gift to the Institute. We were more than pleased to welcome him at the Anniversary; as will be remembered, at the Commencement luncheon President Stratton, '23, stated that many members of the class had attained distinction, mentioning particularly **B. Edwin Hutchinson**, **Tom Desmond**, I, and **Brad Dewey**, X. He most certainly led a distinguished career; all of us at the Institute will feel his loss. Surviving are his widow, Helen; two sons, Richard of Boston and John of Grosse Pointe, and a daughter, Mrs. William Laurie, also of Grosse Pointe. We have written to Mrs. Hutchinson, expressing the sympathy of the class as well as our own.

The Alumni Office was notified by letter of the death on June 6 in Trenton, N.J., of **John Nixon Brooks**, I. John prepared for the Institute at Princeton University, receiving the B.A. degree in 1906, and entered the Institute as a sophomore. He was a member of the Civil Engineering Society and treasurer of the YMCA in his senior year. He performed his thesis, "Investigation of Flow through Vertical Circular Orifices and through Short Pipes and Bends not Flowing Full," with **Bion Bowman**. Our records show that, with the exception of about a year in 1910 in Birmingham, Ala., he lived almost his entire life in Trenton. . . . The Alumni Office also notified us that it had assumed the decease of **Arthur H. Lange**, III. Apparently mail sent to his latest recorded address (1952) in Norfolk, Va., had been returned. Our records show that he was with the U.S. Army Engineers at least since 1932, his latest office address being Norfolk.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

The September issue of "Aerospace Engineering" carried a long message from retired Rear Admiral **Luis de Florez, II**, entitled "Weather—Take It or Make It." His interest in weather control and forecasting stems from his long years as an active airman. He began to fly in 1912, and next year will climax 50 years of soaring. Today he pilots his own twin-engined Amphibian, and is qualified in all types of USN aircraft. Following are excerpts from the De Florez message: "Since the very beginning of our national existence, we the American people have traditionally fought and overcome Nature's forces at every hand, yet we display the same fatalism and resignation about the weather that our remote ancestors did. We do not seem to realize that by subjecting the problem of weather control to an attack equal in magnitude and quality to that which brought out our great discoveries in the fields of flight, nuclear power, chemistry, medicine and other disciplines, we can expect results of equal, if not greater, value. Despite the enormous benefits which would accrue from research leading to weather control, we have not seen fit to tackle the work involved with the same determination and audacity that we have shown in harnessing nature in other ways, with consequent lack of progress. At this period in our history when we are bending every effort to conquer space and solve the great problems of space travel, we seem to have bypassed any serious thought of reshaping our own atmospheric conditions. This is not to imply that we should curtail our space programs in any way, but since our atmospheric conditions constitute the greatest single factor controlling the existence of life on earth, our effort to reshape the conditions of 'inner space' to our immediate benefit should at least accompany the attempts to master 'outer space' for the future. The incredibly complex movements of the atmosphere, caused by the absorption of solar energy and rotation of our globe, determine, in the main, our weather and our climates. In turn, our climates and weather determine the living conditions. The question is—can we do something about the weather besides complain about it? The answer is yes. This is not the isolated opinion of the author, whose career has been chiefly in aviation, but also the opinion of many scientists. Skepticism concerning the possibility of weather control appears to stem to some extent from the inability to visualize some specific attack on the seemingly gigantic problems involved. Our immediate objective should be to organize and support a major effort in atmospheric research."

Thomas Malone, President of the American Meteorological Society wrote: "Admiral de Florez has effectively combined some mind-stretching thoughts on the implications of large-scale weather control." . . . That's all the news received in time for the December Review. I hope there's more for the next issues.—**Henry F. Dolliver**, Secretary, 10 Bellevue Road,

Belmont 78, Mass.; **John A. Herlihy**, Assistant Secretary and Treasurer, 588 Riverside Avenue, Medford 55, Mass.

'12

William S. Wolfe passed away suddenly in July at his home in Delray Beach, Fla., where he has been living for three years. Formerly he was in charge of domestic plants of the Goodyear Rubber Company. He had been active in church and civic affairs in Akron. He is survived by his widow and a son. . . . **Clarence A. Stewart** passed away in Burlington, Vt., last May. For 22 years he was supervisor of Eden Park Conservatory of Cincinnati. During World War I he saw combat duty in France. He is reported to have lived in 48 states. Seven years ago he retired in Cincinnati and has since been living in Starksboro, Vt. . . . Word has reached us of the death of **Charles H. Mills** of San Diego, Calif. . . . The following names are being removed from the Alumni Register as no contact could be made with them (if you can give any information as to the whereabouts, it would be greatly appreciated): **Kenneth H. Brown**, last address, 37 Chester Street, Watertown, Mass.; **Dr. Joseph B. Finberg**, last address, Haverhill, Mass.; **William H. Murphy**, last address, Scotch Plains, N.J.; **Merle G. Woodward**, last address Eugene, Ore.

John Shore stopped in to see me recently and presented a very interesting proposition that I hope members of the class may take advantage of. John teaches at the Franklin Institute in Boston and also acts as a travel agent. He has offered to contribute to the 1912 Alumni Fund \$25 of every \$1000 which he can book from members of 1912. If you are going around the world or contemplating any trip, I know that John can be of great service to you. He is connected with Arnold Tours, who operate in all parts of the globe. He may be reached in care of Arnold Tours, 79 Newbury Street, Boston, Mass. John has been very active in the founding and operation of the Boston Stein Club. This club has been instrumental in contributing over \$100,000 to the Institute for scholarship funds and other worthy causes. John's daughter is in the Geological Library at the Institute and his son is a consulting engineer living in Cambridge. It is interesting to know that Mrs. Shore was the first chemist hired by Arthur D. Little in its consulting work.

An interesting letter from **Gene Marcceau** of St. Petersburg enclosed correspondence with the broadcasting industry, criticizing them for their lack of coverage of the Institute's Century Celebration. I think his point was well taken. . . . After **Larry Cummings** and **Harold Brackett** returned from their winter in Florida they spent a pleasant week at the Cummings' Squam Lake fishing camp. **Jim Cook** and **Hulda** were also there.

Alumni Day at the Institute last June was attended by **Fred Busby**, Mr. and Mrs. **Charles H. Carpenter**, Mr. and Mrs.

William L. Cummings, **Albion R. Davis**, Mr. and Mrs. **J. C. Hunsaker**, **Milton Kahn**, Mr. and Mrs. **Wallace J. Murray**, Mr. and Mrs. **Jonathan A. Noyes**, **William A. Rhodes**, Mr. and Mrs. **Frederick J. Shepard, Jr.**, Mr. and Mrs. **Cyrus F. Springall**, and Mr. and Mrs. **Louis S. Walsh**.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 35, Texas.

'13

Another month has rolled along. When you read these notes Christmas will be approaching. To all of you classmates of 1913 we wish a very Merry Christmas and a Happy New Year.

Again, **Bill Mattson** wins the number one rating as our best correspondent. In spite of a snowstorm in early September, from one inch in Golden, Colo., to three feet in the mountains, Bill still enjoys that "beautiful Colorado weather." More power to you, Bill. Between Jo being vice-president of the Denver Society for Crippled Children and head of the Hospitality Committee, and Bill as vice-chairman of the Denver Chapter of the Red Cross, Denver is properly governed. When are you going to run for governor, Bill? . . . Well, again we are indebted to our second best correspondent, **Jack Farwell**. The news received from Jack is decidedly very sad: Major-General **James Vernon Young**, CB, CBE, president of Cosmos Imperial Mills, Ltd., and vice-president of Hamilton Cotton Company, Ltd., died September 12, 1961, at his Sulphur Springs Road home in Ancaster, Canada. He was born in Hamilton and he attended Upper Canada College, the Royal Military College and M.I.T. with the Class of 1913. Bill Young served in World War I as an officer in the Royal Canadian Artillery and served as master general of ordnance in World War II. He received many honors during his busy and useful life as the chairman of the Board of Governors of Hamilton College; director of the Canadian Life Assurance Company; National Paper Goods, Ltd.; Hamilton Bridge Company, Ltd.; and Duro Aluminum, Ltd. Also in 1946, General Young was made a Companion of the Order of the Bath.

Wistar W. Johnson, 75, formerly of 12 Concord Street, Lynn, Mass., passed away at his home, 804 East Maple Street, Bryan, Ohio. He was born in Eugene, Ore., son of the founder and first president of Oregon University. Wistar was educated at Oregon University, Oxford College as a Rhodes Scholar, and M.I.T. He was associated as an engineer in the Turbine Division of the General Electric Company's River Works for over 35 years. Wistar Johnson is survived by his wife, three sons and two brothers.

To the loyal members of the Class of 1913, we, your officers, wish to thank the 90 members of the class for their prompt and generous response to the "billet doux" which were sent out in the latter part of September. Of the 285 notices only three to date have been returned as "un-

known," namely: **Louis C. Rosenberg**, York and Sawyer, 101 Park Avenue, New York; **Edwin E. Corbett**, Box 542, La Feria, Texas; **Harold D. Marsh**, 336 S.E. 47th Avenue, Portland, Ore. If anyone knows of the present addresses of the above-mentioned classmates, your secretary and the Alumni Office would appreciate that information. Your Scribe has again joined a group of knowledge seekers, and is spending two evenings a week at the Institute studying insurance under the program set up by the Massachusetts Department of Education. The January issue of The Technology Review will summarize the notes and comments received in connection with the cash and checks from the "pay as you go" members of 1913.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

A good friend of mine, who spent summers not far from us on Cape Cod, when he found his children, grandchildren and other relatives rather crowding his housing facilities, bought a nearby small hotel and told them to come and stay as long as they wanted, thus eliminating the problem of who could come on which week. **Charlie Fiske**, in addition to a large summer house, rebuilt his rather sizable barn as a guest house. During August this year they had 15 children and 14 adults, including his wife and him. Fishing trips on his boat had to be arranged in series. Like golf matches, he set up a series of prizes. Since retirement, he has wintered in Arizona, so this year he is spending three months at St. James, Barbados, B.W.I. Perhaps Marie and he feel being well off shore gives them a better chance for rest and quiet.

General **Alden Waitt** has returned after a five-month vacation trip driving around Europe with his wife. They traveled from the Scandinavian countries south to along the Mediterranean, covering Germany and Austria in between. While in Germany he visited with his daughter and her husband and their children; his son-in-law is a colonel in the Medical Corps. . . . **Herman Affel** is working hard to raise the 1914 share of the \$66 million SCF. Progress is coming along well. Hope you have done your share.—**H. B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **C. P. Fiske**, President, Cold Spring Farm, Bath, Maine; **H. A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'15

What a class! It's easy to see why 1915 has such an outstanding reputation among Alumni. On October 6 at the M.I.T. Faculty Club, Cambridge, 29 classmates and guests gathered for an hour of cocktails and a delicious Bill Morrison dinner. We had a pleasant agenda including a lead-off "We are happy" cheer by **Pirate**

Rooney and a welcome to everyone. Jack Brager, a business associate of **Sam Eisenberg's** was a new guest, but the others now really belong with our class: Bill Sheils, David Hamburg, Lou Clements (attends with Max) and Jim Hoey, President of 1943. Long distance competitors were Larry Bailey, South Duxbury; Wink Howlett (out of retirement for the dinner), South Yarmouth; the Lowell Twins, and wonderful to see them, Reggie Foster and Chet Runels; Al Sampson, Beverly; Max and Clem, Framingham; the winnah, **Pop Wood** out of back woods retirement in Peterboro, N.H. Longtime-no-see winner was **Frank Herlihy**. It was good to have him with us again. Attractive and valuable take home souvenirs were given out: **Ralph Curtis** gave us automatic pencils, and Jay Sandler, '17, gave a plastic tumbler filled with his SPIR-IT stir sticks. Generous and considerate of them both. **Larry Landers** again has set up our Annual New York Class Dinner for Friday, January 26, 1962. **Bur Swain** will assist him. This has become a big yearly party for 1915. Plan to be there! **Al Sampson** spoke about our annual Alumni Day cocktail party at the M.I.T. Faculty Club and again, next year, he and Barbara Thomas will put it on the afternoon of June 11. See you there! **Jack Dalton** closed the evening with a big summary of the Second Century Fund activities, with much praise to 1915 for some recent sizable donations from our classmates. Keep up your good work. Some of the fellows returned to 100 Memorial to visit with Fran. A gay and enjoyable evening, attesting again the splendid, friendly feelings in our class. Unfortunate cancellations from Wayne Bradley, Charlie Norton, Ben Neal, Ted Brown and letters of regret from Herb Anderson, Jerry Coldwell, Whit Brown, Doug Baker, Boots Malone, Doug MacMurtrie, Stan Osborn, Herb Whitcomb and Speed Swift robbed us of the pleasure of their company and a tremendous attendance. Speed wrote a typically humorous letter explaining his absence. Present were: Larry Bailey, Bill Brackett, Lou Clements, Jack Dalton, Sam Eisenberg, Jack Brager, Reggie Foster, David Hamburg, Frank Herlihy, Jim Hoey, Wink Howlett, Larry Landers, Azel Mack, Archie Morrison, Wally Pike, Pirate Rooney, Chet Runels, Frank Murphy, Harry Murphy, Al Sampson, Frank Scully, Jay Sandler, Bill Sheils, Ed Sullivan, Fred Waters, Easty Weaver, Pop Wood, Max Woythaler.

During the first week in August **Jerry Coldwell** wrote that he was taking pictures at midnight in "the land of the midnight sun," 480 miles from the North Pole. His card was mailed from Svalbard, Norway. . . . Upon his return from a similar North Cape cruise **Vince Maconi** says, "Our family is fine: Norman, Lois and Richard, '44. I am working every day helping Richard, who is now president of our expanding company. I do get in a game of golf regularly, but this is the first year in many that I haven't broken 90. My putting is off." Too bad for Vince and his 90! . . . After six weeks at his summer place in Rumney, N.H., **Phil Alger** returned to Schenectady to begin

the fall term at Rensselaer Polytechnic Institute, where he said, "I must learn more than I teach." Good old Phil.

After 35 years as health officer for the Hackensack (N.J.) Water Company, **Warren Cowles** retired in June. Warren has participated in the drafting of local, county and state codes and other regulations relating to sanitation. He played a major role in the development of a procedure standard for the protection of water systems within buildings from back-siphonage, as adopted in 1942 by the American Standards Council; this standard has governed the design of plumbing installations and is almost universally referred to in plumbing codes. He lectured for several years at M.I.T. on sanitation and planning. He served for six years in the Illinois State Health Department as an assistant sanitary engineer, sanitary engineer and as acting chief engineer. During World War I, he was a second lieutenant in the sanitary corps of the U.S. Army. He is a member of the Bergen County and New Jersey Health Officers' Association, N.J. Public Health and Sanitation Association, New Jersey Water Works Association, American Public Health Association and the Boston Society of Civil Engineers. "Mr. Cowles was called on in 1926 to take over the responsibility of maintaining the purity of the waters of the Hackensack River, which is the source of public water supply for most of Bergen County," declared George H. Buck, company president. "In collaboration with the local communities, health departments and municipal officials, he developed new concepts and new techniques for the guidance of development within the watershed. During his years of service, farm lands were transformed into suburban and urban areas. In spite of this and largely because of his dedication to the preservation of the quality of the flowing waters, our streams and lakes today are attractive, of high sanitary quality and an asset to the communities. Without the foresight and continuous effort exerted by him and by municipal officials, Bergen County well might be in the same situation as are so many other urban areas which are struggling to clean up their streams and water courses."

Clipped from the Auburn-Lewiston (Maine) Sun: **Ted Spear** retired from the Oxford Paper Company, Rumford, where he had spent 41 busy years. For 24 of those years he had been mill manager and for another seven had been vice-president, Public Relations. After four months of retirement—happy to have the opportunity to become really active again—he started a new career in January, 1961, as administrator of the Rumford Community Hospital. In this field, somewhat different from paper manufacturing, he already had considerable experience. He had served on the Community Hospital's board of directors for 20 years and had been chairman of that board for 15 years. In addition, he had also served on the executive committee of the Maine Hospital Association and had been president for two years. In 1953, after 24 years as mill manager, T. F. Spear was promoted to vice-president, Public Relations. During his years in Rumford, T. F. Spear has

served with distinction on the committees of many local, state, and national civic and fraternal organizations. He is a director of the National Safety Council and has served as a director of the National Association of Manufacturers. He is a past president of Associated Industries of Maine and at present is chairman of its executive committee. He is also a past president of the Maine Hospital Association and is now a member of its legislative committee. He has served on the board of directors of the Maine State Chamber of Commerce and also has been a member of the Androscoggin River Committee. A few years ago he was selected by Governor Muskie to serve on a citizens committee to investigate the enforcement division of the State Liquor Commission. He has always been interested in education and is now a vice-president of the High Education Assistance Foundation in Maine and is also a Trustee of Portland University. Before retiring from Oxford he was a chairman of the Oxford Scholarship Committee for 11 years. He continues to be a member of the Rumford Finance Committee and has served on this important community organization for many years. Ted and Fran Spear have two married daughters and four grandchildren living in Maine. To these two classmates and the rest of the retirees whose notes follow go all our best wishes for long, healthy and enjoyable lives of ease and comfort.

In answer to the request Al Sampson sent on his Class Cocktail Party invitation in June, many chaps have written. **William E. Ash:** "Best wishes to you for a happy party. I spent 22 years (drafting and technical) with Bethlehem Steel Company's Shipbuilding Division, Quincy, Mass., and retired in 1957. I live with my daughter in Holbrook and at 78 still feel young, but infirmities pin me down to small chores and short local trips." **Bowman Atkins:** "Happy Greetings to all classmates. Wish I could be with you and again enjoy seeing one and all. My family however suggests the trip is a little beyond my present mental capacity—I've developed some low blood pressure in the head. Hope you have a glorious time and many of them." **Frank Boynton:** "Best regards to you all. It's too far for me, besides I couldn't get anyone to feed my bird friends while away. Except for the crab grass, I'm living a life of ease." **Alfred Clarke** had to attend his 50th Class Reunion at Amherst. **Schuyler Coffin:** "Too far, too much golf, too much bridge, too old." **Jerry Coldwell** enjoyed being with us here in April, but couldn't make the June party. We hope **Alan Dana** has completely recovered: "I am in bed but don't jump to conclusions. I am getting over a coronary thrombosis, but seem to be mending rapidly." **Al DeBeech:** "I retired in 1957 after over 32 years with a service organization in Toronto, Canada, serving public utilities in Southeastern Brazil, which area included the cities of Rio de Janeiro, Sao Paulo and Santos. Of the last ten years before retirement I spent over half of my time in Brazil. Not wishing to take the long Canadian winters when I did not have to, my wife and I chose the milder climate of St. Petersburg, Fla. We

are not doing much of anything except trying to grow a decent lawn, which is not easy." **Carl Dunn:** "The distance is a little too great for so short a program. I have been trapped into the presidency of the Michigan North Woods Club, which gives me some activity besides the problems of loafing in Florida and the Midwest." **George Easter:** "I'm still working for a living so will have to leave the socializing to **Ben Neal** (whom I have not seen this winter). Maybe by the 50th I'll relent and attend one of our blow-outs but I never have yet! In fact I have been in present buildings less than 4 hours total!" **Russell Fields:** "Sorry, but 3,000 miles is a little too far for a cocktail party. Have been retired for two years which have been spent in traveling and just enjoying life in La Jolla." **Wink and Kath Howlett** (retired in South Yarmouth, Mass.): "This June 12 will be my last appearance at the annual Rubber Manufacturing Association meeting in Williamsburg, Va. Sort of a going away party for Kay and me so we will have to be there instead of at the 1915 party. Our best to all the gang." **John Hyneman** tries to sell us Miami for our 50th Reunion. How about it? "As it is a 4,000 mile round trip for me I will come only to each fifth reunion. I'll make the 50th in four years. In the class picture taken at Harwichport, Mass., in June, 1960, that's me at Number 49 next to Azel. **Louie Young** must be quite handsome to be taken for me. Also he must have a lot of sense because he didn't take Course I. Why not consider having the 50th here instead of the Cape. The weather and the water are much better and costs are low in summer." **Hubert James:** "I am just a retired rambler, now." **Nassime Klink:** "It is too far away. The family think the same, but they thank you, just the same. Azel needs help. What a magnificent job he is doing. Give him my regards, and the same to you, Al." More of these personal bits next month. Our dear old guest, Professor Samuel C. Prescott, '94, wrote: "I appreciate your invitation. I'm always glad to help Azel. He's a good neighbor." (We both live at 100 Memorial Drive.) It was delightful to have Sam with us. We have some additional history on **Yiang Yen Chow** whose passing was recorded last month. He lived in Taipei, Taiwan. Known to his close friends as Elephany Chow, he was the former mayor of Hanchow, on the Chinese mainland, where he served for 20 years. He had been adviser to the Taiwan Provincial Government and since 1955 Administrator of the Yang Ming Shan district in Taiwan.—**Azel W. Mack**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16

As mentioned in the July issue, **Van-nevar Bush's** essay "Education, Wisdom, and Happiness" on the occasion of the Centennial Celebration of the M.I.T. in April is a remarkable package of wisdom. We still have a few copies of an excerpt of this essay, reprinted by the Putnam Fund, and will be glad to forward a copy. . . . We had an opportunity to look over

the 125th annual report of the Manufacturer's Mutual Fire Insurance Company, of which Hovey Freeman continues as president and treasurer. This is the oldest and largest of the factory mutual companies and Hovey has been on the board of directors since 1932. As we looked through the report we wondered whether the list of common stocks held as investments as of December 31, 1960 would serve as a list of recommendations. Note: four of the largest holdings were in IBM, SONJ, Texaco, and AT&T.

Back in August, we had word from the **Vertrees Youngs** that they were planning to go on an elk hunt early in September, at Lava Creek Ranch at Dubois, Wyo., "to try to get us an elk and possibly a b'ar." The hunt was to start September 17, and at its conclusion on the 27th they expected to drive down to Santa Fe to the annual meeting of the American Forestry Association. Wherever they go, Vert includes some rock hunting. In this connection he wrote: "It just happens that Dubois is good rock hunting country as well as elk hunting, so if our trip is successful we will come home loaded with rocks as well as elk meat. I think I will have to take along an extra pair of springs for the car or have heavy duty springs installed." By the way, we have started circulation among 16'ers of our copy of what we call "The Young Safari Letters"—a graphic and absorbing account by Sylvia Young of their safari in Africa in 1959. Do you want to be included in the circulation?

We often lack the life story of a long ago Boylston Street fellow-sufferer, and then along comes a most interesting article in a magazine or a newspaper and the story comes out. One of these came along in the August 2 Boston Traveler, an article entitled "Life's Full of Zest for Flier" by the Traveler's aviation editor, Paul Williams; and the man he was writing about was our **Izzy Richmond**. The story starts out: "Meet one of the most interesting men in Boston. At an age when most men are resigned to contemplation of life's follies, he's full of zest and working hard every day. And what's more interesting to me, he's still flying, jaunting down to the Cape or Nantucket in a Cessna 180 for a game of tennis and a swim (he should have added 'or a 1916 reunion'; Ed.), then home to Brookline. He's Isidor Richmond, Boston architect and pioneer flier whose career in aviation started in 1917 and 44 years later shows no diminution." As a Navy pilot Izzy flew submarine patrols in flying boats along the Atlantic Coast out of Chatham. In the '20's he studied for two years in Europe on a fellowship. And when World War II came along he shut up shop and went off to the wars again. He wound up commanding a Navy Air Field in Brazil and came home a three-striper. You'll agree that's a pretty good stunt for a man in his 40's (he's 67 now)." The aviation editor goes on to say that "for Izzy, flying 'spells release, solitude, a freeing of the mind from all the stresses of a mundane world.' He told me he likes to fly as high as he can and, in the wondrous reaches of the sky, refresh his spirit. Corny? Not at all. Men

who fly for the love of it are a special breed who look with tolerance on earth-bound creatures." And the editor goes on to note something that will strike a familiar chord to those who have come to know Izzy so well at reunions: "If you're looking for the secret of life, you might talk with Richmond because he's found it. It's work; work that is fun, stimulating and demanding, presenting a challenge always."

Trying to chase down changed addresses, we had a note from **Buck Bucknam** in Auburn, Calif., late in August. He said that **Ed Jenkins** had moved back to "God's Country," "the land of no mosquitoes,"—California (4949 Canterbury Drive, San Diego). Both of them having moved from Massachusetts, this description may be sort of hard for some to understand. . . . **Harry Lavine** says he has found that, for one over 65, his line of business with Equitable Life Assurance Society has limitless opportunities, even though it requires that one disaffiliate oneself from management. As time goes on, he becomes more and more convinced of it. Harry mentions that his son-in-law, who went into the bowling alley business some short time ago, now has three in operation, "one in Freeport, Long Island, one in Brooklyn, and one in West Boylston, Mass.; a new one will be opening in two months on Route 9, in Framingham, Mass."

Bob Burnap, in May, says he had nothing exciting to report; he mentioned that he has been retired close to two years. He continued with the Electron Tube Division of R.C.A. for a year and-a-half as a part time consultant. He also has a minor contract with a technical publishing house. He says that between his rather numerous hobbies and things that can be done around a home, there isn't enough time and the days pass swiftly. "Following the common practice of trading on the accomplishments of others, I can boast of being a grandfather for the second time. It's a boy and according to my wife, a most unusual baby." And he is named Robert! . . . According to an item in the April 28 issue of the *Monitor* and New Hampshire-Patriot of Concord, N.H., **George Waymouth** has retired as engineer in the interstate bridge division of the N.H. State Public Works and Highway Department. The article reads: "Waymouth spent 17 years as engineer on sugar plantations in Puerto Rico where he was born, and in Santo Domingo, now known as the Dominican Republic. Except for a period of defense work in World War II, he had been employed in the public works and bridge divisions of the department since 1936 and served on a committee that formulated national safety codes for the installation and operation of aerial tramways sponsored by the A.S.M.E. and the Eastern States Ski Slope Association."

In the June issue we mentioned a recent issue of the *New England Architect and Builder Illustrated*, in which there were six pages of text and pictures of the architectural work of **William W. (Bill) Drummey**. Here are some of the items, later examples from 38 years of hard work by Bill: addition to James F. Pee-

bles Elementary School; Annual Nursery, Franklin Park Zoo; Haverhill Housing for the Elderly; Holyoke Housing for the Elderly; Clinton, Mass., Junior-Senior High School; Central Intermediate School in Haverhill; National Guard Armory in Cambridge; Recreation Area for Exceptional Children for the M.D.C. in Hyde Park; Boston, Forest Hills Overpass; addition to Engineering Building at University of Massachusetts in Amherst. . . . We had word from **Flipp Fleming** last May that he and his wife had just returned from a trip down the east coast of South America, leaving New York on March 24 on the S.S. Argentine and returning April 24. It was a 31-day cruise covering about 13,000 miles on water, with stops at Barbados, Rio de Janeiro, Santos, Sao Paulo, Petropolis, Montevideo, Buenos Aires, and Trinidad. He says: "It was a fine ship, good service, good food, and a nice group of passengers. We had nice weather, a little warm crossing the equator, but no real rough seas. We are now back to normal living."

In a letter back in May, **Hal Neilson** wrote us and mentioned he was not a good correspondent, so he won't mind if we make use of every little bit he sends. He said he was slowly getting better since his illness over a year earlier, though his "old joints feel achy and rusty most of the time. About a year ago I did manage to make and survive a two week's trip by air to the Caribbean area, Virgin Islands, Puerto Rico, Haiti and Jamaica (I was careful to stay out of Cuba). On each arrival I rested, assisted by those delicious ways they mix rum into masterpieces down there; e.g., banana daiquiri at St. Thomas. One highlight I will never forget was one bar boy's mysterious amazement at the Embajador Intercontinental Hotel in Ciudad Trujillo when, to vary things, I ordered an Old Grandad highball. The boy's eyes got big as saucers in his anxiety to please, and he wanted to know who and where Old Grandad was. I asked him to ask the bartender, and I wonder what the bartender told him. Anyway I got a highball of sorts, vintage undefinable." . . . In the July issue of "Holing Through," the *News Bulletin of the Moles*, an Association of Men Engaged in Heavy Construction, was a photograph of 17 of the 21 new members who had been elected in April, "wearing orange nameplates and wide grins." As we see it, about the best looking one in the picture was our **Steve Berke**.

In mid-September we had word from **Irv McDaniel** in Malaga, Spain (consult your atlas), who says that he and Katharine (remember "that's my wife" in his research reports on night clubs in Europe?) have spent the summer at "Honey Gulch" and "have never had a more delightful summer in our lives. It really is a most delightful place." Irv enclosed his itinerary for their trip home to California, starting December 11 in Gibraltar, and arriving in Los Angeles on May 9, with a fascinating detail of stops and side trips in Cairo, Jerusalem, Damascus, Aswan, Port Sudan, Djibouti, Karachi, Delhi, Jaipu, Amber, Bombay, Cochin, Calcutta, Nepal, Rangoon, Singapore, Bangkok,

Saigon, Hong Kong, Tokyo, Hiroshima, Yokohama, and L.A. We are hoping to have word from them from point to point; news bits will be reported as soon as received, but publication will be 6 or 8 weeks later. Looks like a wonderful trip! Irv concludes: "This is not a promise, but Katharine and I hope to fly East for the 46th if everything works out according to our plans. Then we hope to return to Spain—burning our bridges behind us—that is how much we really like it here." Irv says, too, if the class would like him to do some research work along the lines of previous endeavors, he will try. Be assured he has been urged to try.

Via letters, the **Peb Stones** have sounded very comfortable throughout the summer months on their Little Beaver Island right plump in the waters of Lake Winnepesaukee. Not so far from **Steve Whitney's** place (Whit's End) in Meredith. . . . Early in September **Jim Evans** reported on a sojourn he and his wife had made to what we call good old New England. On their way they stopped off in Pawling to see the **Steve Brophys** and reported them both "fine." Their daughter, Joan, and family are in Berlin; the son-in-law is in charge of tanks. Jim comments: "Wow!" Out on the Cape, the Evanses stayed two days in Wellfleet "in a very nice inn" and visited with the **Emory Kemps**. Jim and Emory went bass fishing one afternoon and evening; the girls went to a church supper; and all four had dinner in Provincetown and observed the local color. Jim says: "Ruth Kemp is Mrs. Chamber of Commerce. She has charge of the information 'gals' at Wellfleet." At Osterville, they saw **Howard Claussen** for a moment at the Oyster Harbors dock, where Howard was about to take off with a charter party. Later they spent a cocktail hour in Falmouth with the **Don Websters** and their guests. Jim: "They showed us all over Falmouth and Woods Hole. We ate lunch at the Lamphole—go there one day. Don and Nellie looked fine." In Kingston they stopped and visited a short time with the **Charlie Lawrances**, and report Charlie to be much better. They report great pleasure in meeting Mrs. Lawrence (Lois); Jim and Charlie walked to the P. O. and back, about a half mile trip. On toward Boston, Jim called the **Jack Woods'** home in Cohasset; Jack had been having some periodic hospital check-ups and Mrs. Woods said he was gaining slowly. Jim also reports having seen "Lobbie" (17) in Bronxville, N.Y., who mentioned he had seen **Rafael Alfaro-Moran**, and that "Raef" is happy in growing coffee. Jim's report is very much appreciated.

Howard Claussen sent us a clipping from the Cape Cod Standard Times of September 1, with an underlining of Emory Kemp's name in a list of "principal owners of the 1,756 acres of land in Wellfleet taken by the Government for the Cape Cod National Seashore." We recall that this has been a potential problem to Emory for some time. Howard mentions Jim Evans' short visit at the dock in Oyster Harbors. Then he mentions another item of interest: "Yesterday (September 2) I had as guests, Con-

gressman Hastings Keith, wife and two daughters on a trip to Vineyard Haven. Returning to Cotuit, the President's yacht Marlin, with the President and his family aboard, was anchored several hundred yards off my own beach. This is getting to be old stuff as we meet up with the presidential yacht almost every weekend in our harbor or nearby. He just loves it here—and why not? We have everything!" . . . **Hank Smith**, although he retired in 1957 after 35 years with Underwriters' Laboratories, was invited back to the N. Y. office in '59 to do further work on the preparation and publication of their standards for electrical equipment. Reporting, as of last January, he's quite happy as a consulting standards engineer, working four days a week and quitting at 4 P.M. to avoid the heavy commuter rush. He expects this may go on for another two or three years—a most satisfactory set-up. The Smiths continue to live in Chatham, N.J., and have yet had no strong urge to leave and go elsewhere. Their daughter Sylvia (Mrs. Robert W. Campbell) graduated from Mount Holyoke and teaches eighth grade in Parsippany-Troy Hills and lives in Whippany, N.J.

The **Harold Mills** took off from Mountain Lakes, N.J., at the end of September to do something they have long longed to do—go exploring and camping in a highly unfrequented area, some 25,000 square miles, in the southeastern part of Utah. The area is relatively unknown to tourists for the roads are poor and inaccessible. One can penetrate the region safely only with a guide and a four-wheel drive jeep. Harold says it is replete with beautiful scenery, buttes, canyons, and offers a veritable paradise for the color-film camera enthusiast. Their entrance will be at Blanding, Utah (population 1,177 in Hammond's World Atlas of 1954); they'll have stops at Monticello, Moab, and Green River (population 583), and go on to Capital Reef Monument—an overall area drained by four rivers, the Escalante, Green, Colorado, and San Juan Rivers. This is apparently one of the few remaining areas in the West unexplored by them; anyone who wants to see some exceptional color slides should get in touch with Harold after they get back (scheduled to return by mid-October). . . . **Wes Blank**, writing early in September from Charlottesville, Va., indicates that his wife's illness prevented their attending the reunion in June. Since then she has "fully recovered, but we not only missed the 45th Reunion but were unable to celebrate our 42nd wedding anniversary." Wes has a new cottage at Blue Ridge Shores, Louise, Va., and mentions that he has a book that is to be published soon.

With respect to the report of the 45th Reunion that went out to all active members of the class, it should be noted that **Ralph Fletcher** and our fine hard-working Honorary Member, **Bob O'Brien**, worked out the "mit-pictures" format of the report with a printer and handled the mailing. Most reports have expressed approval of the pictures. One member, however, who appears in a prominent

place, says the only criticism is that this particular picture of him "makes it appear that I've just swallowed a pickle." The report was so long it couldn't all be included in the November issue. One item of interest is the following list, supplied by Jim Evans as secretary of the reunion, giving a partial account of those who wrote him regretting inability to attend: **Bill Barrett**, **Dick Berger**, **Len Best**, **Frank Bucknam**, **Ted Bulifant**, **Bob Burnap**, **Van Bush**, **Art Caldwell**, **Clint Carpenter**, **Dan Comiskey**, **Aime Cousineau**, **Ralph Davies**, **Kem Dean**, **Sid Dodd**, **Dick Fellows**, **Harold Fuller**, **Herb Gilkey**, **Harold Gray**, **Howard Hands**, **Frank Hastie**, **Paul Hatch**, **Jack Hickey**, **John Hogan**, **Moose Jewett**, **Lee Jones**, **Bud Kaula**, **Dick Knowland**, **Larry Knowlton**, **Charlie Lawrance**, **Mark Lemmon**, **Mac McCarthy**, **Irv McDaniel**, **George Maverick**, **Earl Mellen**, **Jimmy Murdough**, **Shatswell Ober**, **Arvin Page**, **Elizabeth Pattee**, **Allen Pettee**, **P. P. Pizzorno**, **Art Shuey**, **Harry Smith**, **Nat Warshaw**, **Bridgie Webber** (deceased June 13, 1961), **Ed Weissbach**, **Bob Wilson**, **Jack Woods**, **Moses Wolk**, **Bill Wylde**. All are first class candidates for attendance at the 46th Reunion to be held on the Cape next June.

Many were shocked, especially those at the 45th Reunion in June, to hear of **Jack Freeman's** quite unexpected death on September 2. Shortly after attending the reunion, Jack and Mrs. Freeman took an extended trip to Europe; to Spain and Portugal as well as Germany and part of southern France. **Hovey Freeman**, Jack's brother, says that before going to Europe, Jack had been given a complete medical check-up and was told by his doctors that he was in excellent physical shape. And that is certainly the way he looked at the reunion. Hovey notes: "Jack's passing is one of those things that is very difficult to understand." On his last day, Jack had gone sailing with his oldest grandson, had gone swimming with the younger ones, and had had dinner with close friends—an active and happy day. How unexpected his passing was, is told by Hovey in a letter to Steve Brophy who attended the funeral: "At home that evening, he was reading his paper when his wife retired; he said he wanted to read for about ten minutes longer. When he did not come up, she called and, getting no response, went back to the living room and found him dead in his chair. It certainly is the way to go, but is an awful shock." Jack retired only last year from the American Brass Company, where he had been vice-president of metallurgy and research for a number of years. He continued active however as a technical consultant to the Anaconda Company, of which American Brass is a subsidiary. In addition to his wife, Mariana (Blood) Freeman, two brothers, **Clarke** and **Hovey**, and a sister, **Mrs. Sidney Clifford**, of Providence, he leaves a son, **John R. Freeman**, 3d, of Danville, Va.; two daughters, **Mrs. William R. Chandler** of Woodbury, Conn., and **Mrs. Jan E. Ellison** of Swarthmore, Pa.; and 11 grandchildren.

Back in March, the Cleveland Health Museum dedicated an exhibit in honor of

Howard Whipple Green, who died in 1959. As reported in a news release: "The exhibit, entitled 'Why Our Nation Grows' traces the phenomenal growth of the U.S. population which increases at the rate of 340 each hour. It also reveals that immigration and advancements in public health are chief causes of this continuing growth. Among those present at the dedication was **Mrs. Howard Whipple Green**, wife of the long-time Health Museum benefactor. The exhibit will become a permanent fixture at the Cleveland Health Museum, one of the nation's most respected health education institutions." . . . Now, in closing, as we look ahead, let us remember, as **Joe Barker** and **Bill Barrett** remind us, that now is the time to take action individually, if we can, "to do something big" for the Institute, to count in our 50 Year Gift. Ask one of them for details. Remember, too, to mark your new 1962 calendar; the 46th Reunion comes on June 8, 9, and 10! Your officers take pleasure in wishing you a Merry Christmas and a Happy New Year.—**Harold F. Dodge**, Secretary, 96 Briarcliff Road, Mountain Lakes, N.J.

'17

Happy Holidays from your class officers. Why not put some of your Christmas money into the vase on the mantle as the beginning of a fund to take "You-All," including wives, to our 45th Reunion at Snow Inn, Harwichport, Cape Cod, June 8, 9, and 10, 1962.

From copies of letters received from **Ray Stevens** and **Stan Dunning**, who are doing the planning, our reunion next year ought to be a big success. **Loosh Hill** says that we are still solvent and that the class financial outlook is good. **Mrs. Walter Wood** will plan activities for the ladies. **Heinie Gartner**, who lives on the Cape, is acting as liaison with the Snow Inn. **Stan Dunning** is arranging for the showing of interesting scenes from past reunions, etc. **Dud Bell** is cooking up something theatrical. **Ray Blanchard** will take care of the golfers. **Rudy Beaver** will see that we are properly adorned with something to identify us as having a 45th Reunion. And I am sure someone will be designated to arrange for those who want to go boating or fishing. If you want to be sure of good accommodations at Snow Inn, send in your reservation now, marked for the attention of Mrs. Frank N. Thompson.

Another recent retiree is Lieutenant General **Leslie R. Groves**. He writes: "I retired from the Remington Rand Division of the Sperry Rand Corporation yesterday (August 31). I had been with Remington Rand as a vice-president ever since my retirement from the Army on February 29, 1948. While I will no longer be on a nine-to-five, five-day week plus, I can see no sign that I will not be quite busy. I have some outside interests, and I imagine that I will probably take on some more. I do not feel yet that I have reached the contemplative age, where I could enjoy making a profession of fishing or of the golf course. In fact, I feel

that a few more years will be required before I retire my tennis racket and start enjoying golf. And I hope that it will be many years before I have need of one of those wagons to cart me around the golf course. At least until my plans are changed, I expect to continue to live in Darien, Conn., in the house I have occupied for the last 13 years."

Frederick A. Stearns, who was professor of mechanical engineering at Northeastern University for 42 years, died September 23, at his home in Melrose, Mass. He was 66 years of age. He taught mechanical engineering at M.I.T. from 1919-1920 and then transferred to Northeastern.

On July 12 the Governor of Delaware announced the resignation of **F. V. (Dutch) duPont** from the Public Service Commission for health reasons. For 29 years Dutch was highway commissioner for Delaware, later serving as commissioner of the U.S. Bureau of Public Roads. . . . **Harry Wansker** wears a lapel button representing the highest civilian award of the Department of Defense, the Patriotic Civilian Service Award. He gets a kick out of its being bestowed by an army general of the Chemical Corps to an ex-Navy man.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford 7, Conn.; **Stanley C. Dunning**, Assistant Secretary, 1572 Massachusetts Avenue, Cambridge 38, Mass.

'18

Our own faltering humanity sometimes leaves undone things we ought to have done, producing the necessity to go back and catch up the ragged edges. Thus, the proprietor of this column finds items in his file which should have been immortalized in printer's ink before now. The first has to do with **Sam Chamberlain**, easily the most prolific author of books in the 1918 clan (or any other M.I.T. vintage I know of). He has another volume out, this time devoted to a photographic narrative of Rockefeller Center instead of to New England houses or to the culinary delicacies of France. . . . Courtesy of **Pete Sanger**, some months ago came the New York Times account of the marriage of **Phil Diinkin's** daughter, Sarah, to Allerton Cushman, Jr., a former Marine lieutenant now studying at the Harvard Business School. For any wives who scout this column and are interested in such details, the paper said the bride "wore a long-sleeved gown of ivory peau de soie," whatever that is!

On June 13 Worthin Proctor, '17, telephoned me on his way from visiting a 91-year-old aunt in Tamworth, N.H., to catching an army transport for Europe. He is a retired colonel, now living in Northampton, Mass., who had 5,000 men under him in his last command. He sent a postcard from Bergen saying he caught his ship by 38 minutes, was having a beautiful tour of Norway, and was headed for Sweden on "a fantastically beautiful stretch of water between snow capped mountains." . . . The town of Mansfield, Mass., is trying to catch up on the past by

dedicating its new rotating beacon at the Municipal Airport to the memory of **George Linwood Hall**. Lin was an aviator in World War I, with the rank of second lieutenant. He survived a plane crash during his five months' service in France, but died in a West Yarmouth crash in July, 1920. . . . Catching up on our co-eds, **Gretchen Palmer** took a short vacation in Maine last summer, and still expects to retire to Hawaii after serving two more years as a parish secretary. . . . Sister St. John Nepomucene, better known to us as **Elizabeth Fennessey**, was a safety inspector for the Massachusetts Division of Labor and Industry for seven years before becoming a nun. She is now head of the Chemical Department of Trinity College in Washington, D.C. Last summer, under a National Foundation grant, she attended an Institute for Science Teachers at the University of Oklahoma. She also has a new American Chemical Society, Petroleum Research Fund grant in the amount of \$3,280 so students under her direction may do chemical research using radioactive isotopes. This grant, which started on September 1, replaces the three-year grant on Petroleum Literature which ended in August.

Among the more distinguished scientists whom our class has produced is **Julian M. Avery**, long a technical advisor to the Ethyl Corporation, and widely known for his work in the metallurgical and chemical fields. Catching up on Julian, last May he was elected a director of the Allerton Chemical Company of Rochester, N.Y., as well as of Brooks Research, Inc., which is a subsidiary. In addition to an impressive list of technical articles in various professional journals, and the 1958 Franklin Institute Medal, Julian holds 11 patents. . . . **John Norton** received the Plansee Plaque, awarded at the Fourth International Plansee Seminar held last June in Tirol, Austria. He is the first American to be so honored in recognition of fundamental contributions to the field of powdered metallurgy. Professor Norton is a fellow of the American Academy of Arts and Sciences and a member of the American Physical Society, the American Institute of Mining and Metallurgical Engineers and the British Institute of Metals.

Among those who are professionally all caught up, our other **Julian**, whose last name is **Howe**, retired last spring as administrative assistant to Wellesley's Superintendent of Public Works, thus bringing to a close 22 years of service to the town. Following a testimonial dinner, Julie and his wife visited 16 countries in Europe, topping it all off with a visit to their son William and wife in California. They have a married daughter living in South Dartmouth, Mass. Julie can now increase an already formidable local reputation as a grower of roses. . . . **Edwin Harrall**, who started with the telephone company and has just retired as an executive with the Bendix-Friez Company, now serves Essex Community College as its business manager. Essex is a two-year junior college in Baltimore. . . . **Richard A. Wilkins** retired October 1 as vice-president in charge of research and development for the Revere Copper and Brass Company, which office he held for 27 years. He has

the distinction of being the first non-resident of the British Isles to be elected a fellow of the Institute of Metals in London, England. During World War I he served as first lieutenant with the Development Division of the Chemical Warfare Service. Dick is also a trustee of the Mohawk Valley Technical Institute in Utica, member of the Educational Council of M.I.T., and member of the American Legion, Rome, N.Y.

Among our outstanding classmates, no doubt because he falters less than the rest of us and so leaves no ragged edges to be caught up, is **William C. Foster**. In October President Kennedy signed a bill creating an agency to work world peace through disarmament. He immediately appointed our Bill, a good Republican, to head the effort. Government service is an old story to Bill, who is reputedly one of the very best executives in Washington. . . . For **Ralph Sargent** and **Daniel Starr**, our faltering humanity will trouble no more. Ralph died in Florida on August 25, and Dan died in Connecticut on October 1. No further details yet available to me. . . . However, before it is too late and the chance for you to catch up is gone forever, have you contributed yet to our 50th Reunion present to M.I.T.? We have less than \$50,000 at this writing. The class of '19 gave \$75,000 at their 40th two years ago. We want \$350,000 by June, 1968.—**F. Alexander Magoun**, Secretary, Jaffrey Center, N.H.

'20

At Alumni Day last June the class was reasonably well represented. Among those present were the following couples: Mr. and Mrs. Norrie Abbott, Al Burke, Albion Doe, Herb Federhen, Henry Hills, John Nalle and Amy and me. Also on hand for the luncheon or banquet or both were Frank Badger, Bill Dewey, Ed Ryer, Bill Russell, Kennedy Pope, Bat Thresher, Bob Patterson, and Al and El Wason. It was good to see them all and they all looked in good shape considering their years. After the day, the **H. Buggies** had the pleasure of inspecting **Bob Patterson's** marvelous restoration of an old Back Bay mansion at 54 Fayette Street. Bob retired last June after 27 years with John Hancock, where he was vice-president and manager of the bond and stock department. But it didn't take him long to find a new activity as treasurer of Foursquare Corporation, a new mutual fund with offices at 27 State Street, Boston. Good luck, Bob!

Homer Howes also retired last spring after a 40-year career with Bemis Brothers Bag Company, St. Louis. Homer was vice-president and director of sales and was considered one of the architects of the packaging industry's spectacular product development and growth. Homer joined Bemis as a traveling auditor right after graduation. Five years later he became a one-man New Purpose Department devoted to the finding of new uses for bags. Expanding, it later became the Trade Extension Department, then the General Sales Department with a staff of

40. He is a member of the Theta Xi Club of St. Louis and served two years as its president, was chairman of Theta Xi Foundation's executive committee, former president of the M.I.T. Club of St. Louis, and has been a trustee of the Second Presbyterian Church for many years.

... Another recent retiree is Frank Reynolds, '19, who served 36 years with Bird and Son, where he was director of research. Frank, who before that was chief chemist and research chemist, made many important contributions to new floor covering and roofing development. He and Mrs. Reynolds will continue to make their home in East Walpole. ... And still another is Elliott Perkins after 41 years of service with the New England Telephone and Telegraph Company. His work was concerned with the big dial exchanges, and more recently he was their protection engineer dealing with problems of electrolysis and corrosion. He was chairman of the Greater Boston Electrolysis Committee and was awarded a plaque and an honorary life membership at the time of his retirement. Elliott and his wife and two daughters have a lovely home beside Spy Pond in Arlington. He writes, "Long live the good old Class of 1920," to which we say, Amen.

Your secretary and Al Burke had the privilege of representing the class at an M.I.T. retirement reception for Bat Thresher, who has served the Institute so long and effectively as Dean of Admissions. Bat is known throughout higher education circles for his distinguished contributions in an increasingly complex and vitally important area. The gathering of M.I.T. greats that came to do honor to Bat and Irene would have impressed you all with the affection and esteem in which this illustrious classmate is held. Bat makes his home at 667 Chestnut Street, Waban. ... Ed Cruise is now living in Allston, Mass., at 1148 Commonwealth Avenue. ... Leo Murphy has moved from North Andover to Lawrence, Mass. ... Amasa Castor alternates between Fort Lauderdale in the winter and Manchester, N.H., in the summer. ... F. A. Brooks, Department of Agricultural Engineering, University of California, spoke before the American Association for Science, Pacific Division, at Davis, Calif. His subject, "Instrumentation and Preliminary Plans for Research in Mass Energy and Mass Transfer Near The Ground."

Friends of Ned Cochrane would be interested to read a biographical memoir of his achievements and accomplishments, prepared by Dr. Jerome Hunsaker, '12, for the National Academy of Sciences. A bare outline of Ned's honors and distinctions covers two pages. ... Another distinguished classmate, Samuel Schenberg, recently received the annual Honor Scroll Award of the New York chapter of the American Institute of Chemists for his work in furthering science education in New York City schools. Sam, who is director of science, Board of Education of the City of New York, also was the recipient of the Distinguished Service to Education Award of the Education Societies. Last spring he was invited to Vienna to inspect scientific equipment for school use and he and Mrs. Schenberg visited

Rome, Paris and London as well, reporting a delightful trip. ... Dr. Carl Leander, the noted dentist of Drexel Hill, Pa., has come back to Massachusetts and is living in Hyannis. ... Larry Berg is now in Burlington, Mass. ... Jack Logan has left Pittsburgh and is now in Bedford, Pa. ... Foster Doane's latest address is 501 East Wisconsin Avenue, Neenah, Wis. Foster has a lovely home there.

As the new Review season starts, I am afraid I have a long list of deaths to report. Prominent among these was Hugh Duffill of Pembroke, Mass. Hugh taught civil engineering at Lincoln Technical Institute in Boston before setting up his own engineering firm in Boston. He had been associated with the Illinois Division of Highways, Stone and Webster and the Portland Cement Association. During World War II he served as a commander in the Coast Guard and was in charge of security for the Port of Boston. He was founder and first president of the Massachusetts Association of Consulting Engineers, and an active member of many engineering and professional organizations. He was also past president of the American Savings and Loan Institute.

Dr. Igor Zavarine, former M.I.T. professor of metallurgy, died August 20. A native of Russia he earned advanced degrees here. After leaving the Institute in 1940, he worked for a number of companies, most recently with Sylvania on uranium research. His home was in Belmont. ... Blythe Reynolds died last June while playing golf at his home club in Upper Montclair, N.J. He had retired last year after twenty years with Merck and Company, where he was vice-president in charge of operations.

Belated news of the death of Jose Padilla Vega has reached us from Honduras where he last lived. ... Also of Charles W. Howe of Winthrop, Mass. ... and Louis Bender of Topeka, Kansas. No details are known. ... Catherine Kosicki, beloved wife of our classmate, Witold Kosicki of Ogunquit, Maine, died last May. A member of "Who's Who in American Art," Mrs. Kosicki was nationally famous for her work in tapestry and painting. Besides her devoted husband, she is survived by two daughters, five sons and several grandchildren. A card from Witold indicates that he has been visiting in Warsaw, Poland, recently.—Harold Bugbee, Secretary, 7 Dartmouth Street, Winchester, Mass.

'21

Under the heading of "Tribute and Welcome" in the "M.I.T. Observer," Editor Nelson Lees, '53, son of the late Connie Nelson Lees of 1921, quotes "The Tech" as saying: "The Dean of Students is concerned with anything at all involving students and this means everything from comedy to tragedy." Ned continues: "Professor John T. Rule, '21, has been very much in the midst of the comedy and tragedy and is now returning to teaching as professor of engineering graphics after five years as Dean of Students." For the Institute, President Stratton, '23, said of

Jack: "His sympathetic understandings of the interests and problems of undergraduates and his sincere concern for their welfare have won him the respect and affection of the entire student community. We are deeply indebted to him." The Observer notes that tribute to Jack has come from students as well as faculty, citing "The Tech's" editorial comment that "Dean Rule has been a wise and understanding man who has served as an advocate of the students with deep sincerity and success." ... It is of particular interest to your secretary that the man selected to succeed Slide Rule in this most demanding segment of the heavy responsibilities imposed on those in the field of higher education, is a long time personal friend, Professor Kenneth R. Wadleigh, '43, whom we are proud to have sponsored in his entrance to Technology, where he earned bachelor's, master's and doctoral degrees and became a member of the staff of the Department of Mechanical Engineering. ... For the many '21'ers on the M.I.T. Educational Council, we welcome the new Director of Admissions of the Institute, Roland B. Greeley, and extend sincere good wishes to retiring Professor B. Alden Thresher, '20, recipient of national recognition for his outstanding work in that capacity during the last 26 years. It was indeed difficult to express these wishes adequately when we found Bat clearing his desk preparatory to leaving M.I.T. last Alumni Day.

In view of the signal success of crew at Technology, the "SCF Newsletter" reminds us that the spring of 1920 marked the establishment of crew as a permanent sport. That first crew had as its captain our own Irv Jakobson and also included Don Morse and Chub Davidson, with Ted Steffian as manager. Ollie Bardes, says the SCF report, is way up there with the top leaders in having achieved some 75 per cent of the Cincinnati area quota. ... Recent news of the official Institute family includes the listing of Gus Kinzel as a member of the Board of Trustees of the MITRE Corporation. Gus continues his popular series of excellent talks to various alumni groups, most recently to the Long Island Section of the Technology Club of New York on the subject of "The Future Engineer." ... Jack Rule has been named by the University of Detroit as a member of its special advisory council to evaluate curricula material for a course in engineering graphics sponsored by the National Science Foundation. ... A resident of Florida since his retirement in 1957, Joe Kaufman, '23, Essex Road, Daytona Beach, has been appointed local chairman for the Second Century Fund of the Institute. Joe has been chief chemist of Irvington Varnish and Insulator Company, a specialist on insulating varnishes for L. Sonneborn Sons and the head of his own commercial refrigeration and appliance firm. He is a member of the Temple Lodge of Masons and the M.I.T. Stein Club.

We are indebted to Bill Sherry for a most entertaining book entitled "The Oil Business as I Saw It," by W. L. Connelly, oil pioneer and associate of Harry F. Sinclair and the Sinclair Oil Corporation. We enjoyed Bill's kind words on the fly leaf

and particularly the friendly references which the author makes to Mr. and Mrs. William J. Sherry, with whom he made the Holy Year Pilgrimage to Rome in 1950, and who were such fine companions on various fishing trips. . . . **Josh Crosby**, ex-retiree, tells us he is now with Arthur D. Little, Inc., in Cambridge. . . . Phyllis Edna Burckett, daughter of Ethel and the late **Max Burckett**, was married to Walter P. Ulicny at Maplewood, N.J. . . . Sorry we missed the visit of **Jimmie** and **Lucie Jones** to our home in Glen Ridge, N.J. For the record, Jimmie has most modestly accepted his being suddenly skyrocketed to fame by the announcement of our revered President Jay Stratton, that said Jimmie was one of his instructors in Electrical Lab. Now retired from his development engineering projects for Commonwealth Edison Company, Chicago, he and Lucie make their home at 2520 Noyes Street, Evanston, Ill. A brief note says: "We couldn't come this near to Glen Ridge without stopping. Enjoyed every minute of the 40th Reunion due to the excellence of **Mel Jenney's** efforts. Please look us up when you are in Chicago." Their son, Bob, is a neighbor in Montclair and is working in Clifton, N.J.

Fred M. Rowell, since 1950 vice-president and general manager of the Cape and Vineyard Electric Company, is receiving congratulations on his election as vice-president of the New Bedford Gas and Edison Light Company and, early next year, the additional responsibilities as its general manager. Fred will continue as vice-president of Cape and Vineyard Electric. He has served in utility work since 1922, when he started as a distribution engineer for the Plymouth County Electric Company, becoming its general manager and also manager of the Plymouth Gas Light Company in 1946. . . . Ever notice how many of the class have helped to develop boys in scouting? The son of a neighbor of the **Haywards** in Ridgewood, N.J., told us how much he appreciated **Sumner's** leadership in their scout troop. . . . We recently served as co-chairman of the 50th anniversary celebration of Glen Ridge Troop 1, during which **Phil Coffin** was honored as one of its former chairmen and our son, Alfred, as a former scoutmaster. . . . **John M. McClelland** of Pittsfield, Mass., recently was honored by his associates in the observance of his 40th anniversary with General Electric. He joined the test program at Schenectady shortly after graduation in Course II and was then assigned to the Pittsfield transformer plant. Since 1946, he has been its manager of service engineering. Mac is a native of Boston and a registered professional engineer. His memberships include the American Institute of Electrical Engineers, the Stanley Club, Pittsfield G.E. Engineers Association, American Legion, Berkshire Shrine Club, Melha Shrine Temple and Mystic Lodge, F. and A.M.

We acknowledge with grateful thanks the gift by **Munnie Hawes** of his entire set of 40th Reunion color slides to the ever growing photographic archives of the Class of 1921. As noted in these columns, Munnie and Alex had an extensive European tour last spring. Maxine and your secretary enjoyed an evening of beautiful

pictures of that trip following dinner at the Hawes home in Sea Girt, N.J. They have a new grandson, Dean Charles Dalton, who arrived just after their return to this country. **Munnie** and their youngest son, George, have been visiting colleges in anticipation of his entry next fall. . . . A note from **Bob Cook** reports his annual southward migration to his home in Ft. Lauderdale, Fla. . . . **Dr. Joseph L. Gillson** of Wilmington, Del., was honored with the Alumni Merit Award by Northwestern University, where he received both bachelor's and master's degrees before joining us to obtain his doctorate at Technology. Joe retired last year as chief geologist for DuPont and is now a lecturer at the Institute in the Department of Geology and Geophysics. A recipient of the 1957 Donald C. Jackling Award for distinguished work in economic geology, Joe has been recognized in his field by election as the national president of the American Institute of Mining, Metallurgical and Petroleum Engineers, the Society of Economic Geologists and the American Geological Institute. He is the editor of "Industrial Minerals and Rocks" and has been an instructor in mineralogy at Harvard and an associate professor of geology at M.I.T.

Edouard N. Dubé has fully recovered from an operation this fall and is busier than ever at his consulting engineering offices in Boston. Chick and Maida were gracious hosts to Maxine and your secretary at their home in Reading, Mass., and excellent guides on a trip to the impressive Cathedral in the Pines at Rindge, N.H., and the area to the north. The fall foliage was delayed but good weather more than made up for it. We had the pleasure of meeting the Reading branch of the Dubé family, daughter Caroline and son Paul and his wife and three fine boys. Paul was graduated from Boston University and is on the faculty of Northeastern University. Caroline is a graduate of Pine Manor Junior College and is a dental technician. The eldest daughter, Lucienne, also Boston University, lives in Falmouth Foreside, Maine, and has two sons and a daughter. Anne, Chandler School, is married and lives in Williamstown, Mass. Delay on our return trip regretfully made it necessary to forego a planned stop to see **Ray** and **Helen St. Laurent** at their Manchester, Conn., home. . . . **George Schnitzler** wrote from his home in Brookline, Mass., and sent a color picture of Anne holding a Plymouth rock against a background of the Mayflower II. He says: "We had a wonderful time at the 40th Reunion. It was the first time our wives were formally invited and this innovation proved to be successful far beyond our expectations. The pattern has been set, and from now on I am sure the ladies will join us at all future reunions. A nicer group of people we have yet to meet. The three days we spent together were pure joy. As of the first of July, I retired. I had been connected with the National Bureau of Standards for 38 years, spending most of my time out in the field visiting lamp factories in the vicinity of New York and Boston. My principal duties were setting up specifications for, and the testing of, incandescent electric light bulbs and fluorescent

lamps. I now plan to spend the winter in Florida, a month in the summer in the White Mountains and the rest of the time in Boston. I have a variety of interests which keep me busy. I still play tennis. At a recent mixed doubles tournament in New Hampshire, my partner and I were the winners." George and Anne have a married daughter, Laura, who attended Jackson College, and a grandson who is almost three.

A recent letter from our Class President, **Ray St. Laurent**, tells of a letter he received from **Helier Rodriguez**, who has now established a permanent residence in Spain. He can be addressed: Antonio H. Rodríguez, Avenida Generalísimo 83, (6° Der.), Madrid, Spain. . . . **Saul Silverstein** is now on a round-the-world trip which includes major stopovers in India and Japan.

Since writing last month's notice of the passing of Professor **Edward R. Schwarz**, we have come across an article in the Technology Review for March, 1933, which tells of the honor which came to Professor Schwarz in being elected to fellowship in the British Textile Institute. The long article also states: "Under the personal direction of Professor Schwarz, Technology has developed one of the best equipped textile microscopy laboratories in this country and possibly in the world." . . . You have received Irv Jakobson's letter of thanks for your heartwarming performance to date on our 40th Reunion Gift to Technology. Please bear in mind that all giving up to next Alumni Day will still continue to swell that gift. Now would be a most appropriate time for a year-end present to M.I.T. Here's wishing you and your family the best of Holiday Greetings!—**Carole A. Clarke**, Secretary, International Electric Corporation, Route 17 and Garden State Parkway, Paramus, N. J.; **Edwin T. Steffian**, Assistant Secretary, Larsen, Steffian, Bradley and Hibbard, 711 Boylston Street, Boston 16, Mass.

'22

The attractive colored pamphlet describing the New Ocean House at Swampscott keeps reminding me of our 40th Reunion, Thursday evening, June 7 through Sunday dinner, June 10, 1962. Since wives and families are invited, with the attraction of Colonial Tours, early reservations are desired. **Parke Appel** and **Don Carpenter** got together in September to talk over some of the plans. They were also reviewing the accomplishments of the class toward the Second Century Fund and the Class of 1922 Endowed Faculty Chair. We need plenty of generous pledges in these next six months.

Mr. and Mrs. **Robert Tonon** of Winchester have announced the engagement of their daughter Catherine to Arthur Crossley Smith, 3d, of Elkins Park, Pa. Catherine is a graduate of Centenary College. Her fiancé graduated from Princeton in 1961 where he was a member of the Quadrangle Club. . . . **Frederick N. Dillon** of Fitchburg escaped serious injury in a September automobile accident. Last re-

ports were that he is recovering rapidly.

... **Harold R. Boyer**, Vice-president of General Motors and General Manager of General Motors Defense System Division, exhibited a new approach to vehicular mobility during the annual meeting of the Association of the U. S. Army in September. The demonstration indicated how to attain a greater range of land operations through an analysis of soil and vehicle systems. . . . **W. Barton Jones**, President of Barton Instrument Corporation, Monterey Park, Calif., has been named a fellow of the Instrument Society of America. The honor was conferred for "distinguished contributions in the field of flow and pressure measurement." He lives at San Marino, Calif. Mr. Jones entered the instrument manufacturing business in 1944 and is the holder of more than 17 patents and a developer of nearly 200 instruments. The rupture proof bellows principle is now being used in various instrument forms for flow measurement in general. . . . Professor **Joseph H. Keenan** is relinquishing his position as head of the Department of Mechanical Engineering at M.I.T. to return to teaching and research. He is a noted authority on thermodynamics with interests in jet and rocket propulsion and gas turbines. He is the author of "Thermodynamics" and other texts. He represented the United States at several international meetings on the properties of steam and is a member of honorary and professional societies. Professor Keenan and other M.I.T. professors have issued a most comprehensive statement on "Engineering and Education."

Oscar Horovitz of Newton was honored in October by being named a fellow of the Photographic Society of America, the "world's largest photographic organization," for establishing and maintaining a standard of excellence in non-theatrical film productions, and his untiring efforts in the "promotion of amateur movie groups through service and organization." Oscar also received first place in the "travel section" of the 22nd annual international Gold Cup amateur film competition in Sidney, Australia. We hope to have some of Oscar's award winning films at our 40th Reunion.

Our sympathies are extended to the families of **Thomas F. Sheeran**, production analyst for the MTA in Boston, and **Paul S. Murdock** of Montclair, Vice-president and Treasurer of J. T. Murdock, Inc. New addresses are noted for Dr. **Conrad E. Ronneberg**, Grandville, Ohio; **Platt C. Benedict**, Tsumbe, S. W. Africa; **Charles D. Mackintosh**, St. Petersburg, Fla.; Reverend **Herbert W. Frick**, Miami, Fla.; Rear Admiral **Charles A. Nicholson**, Weirsdale, Fla.—**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, N.Y.; **C. George Dandrow**, Assistant Secretary, Johns-Manville Corporation, 22 East 40th Street, New York, N.Y.

'23

The City of Philadelphia paid a distinguished citizen tribute to **Miles N. Clair** on September 18 at a special ceremony

held in Major Richardson Dillworth's reception room at City Hall. Miles is president of the American Society for Testing Materials and of the Thompson and Lichtner Company of Brookline, Mass. The tribute reads as follows: "Philadelphia's reputation as a seat of scientific and technical endeavor is world-wide. Any roster of the distinguished men and women associated with its institutions must include Dr. Miles N. Clair, President of the Thompson and Lichtner Company, Inc., and new president of the American Society for Testing Materials. Dr. Clair spent his boyhood in Pennsylvania, and was graduated from West Philadelphia High School. He received his engineering education at Drexel Institute of Technology, taught there for several years, and returned in 1951 as one of 60 honored alumni. In 1960 the school conferred on him its honorary doctor of engineering degree. Other recognitions have come from many leading engineering organizations and philanthropic and civic agencies in which he is active. More than any other engineer, Dr. Clair has been credited with developing the use of pre-cast and pre-mixed concrete. His company pioneered in developing ready-mixed concrete procedures, permitting trucks to supply concrete to projects in large quantities. Under his direction, his company originated many pre-casting methods. Bridges, airports, military bases, and other major facilities built by his firm are located both in this country and abroad. Dr. Clair's personal research, writings, and consultation service have contributed greatly to the advancement of concrete construction. Honor accorded Dr. Clair stems from the bedrock of great achievement, in turn based on his outstanding personal qualities of imagination, thoroughness, and boundless energy. In view of his prolific creativity and his service in furthering human betterment, bringing honor to himself and this city's institutions, the City of Philadelphia elects to award this tribute."

Our Class President, **Horatio Bond**, was sent to Mexico in August, to represent the National Fire Protection Association, at a series of conferences for people concerned with local fire protection matters in industry, insurance and government. Mr. and Mrs. Bond were in Mexico City a week as guests of the Instituto Mexicano-Norteamericano de Relaciones Culturales. Their expenses were fully borne by the Avalon Foundation. This is a particular compliment to NFPA as it is part of a program of visits to Mexico arranged for distinguished Americans, the list of which has previously included scholars and scientists. NFPA member **Thomas M. Nevin**, '24, is a director and treasurer of the Instituto and a member of the committee arranging visits under Avalon Foundation grants. Mr. Nevin arranged for Mr. Bond to meet most of the NFPA members in Mexico. Mr. Bond met with members of the board and certain committees of the Asociacion Mexicana de Instituciones de Seguros and was tendered a luncheon by this group. He also visited a number of industrial plants and the public fire department (Cuerpo de Bomberos). He met with a select

group of some 40 engineers and architects, exchanging information on fire problems, and spoke before a larger general meeting of over 300 persons on Industrial Fire Protection Programs.

Your secretary-treasurer was pleasantly surprised one evening in early September when **Howard** and **Mildred Russell** dropped in for a short visit with the Haydens in Lancaster. The Russells were on the way to Amherst, N.H., where they have bought a home to which they plan to retire shortly. One of Mildred's hobbies is the collection of dolls, and their station wagon was really loaded with them. Incidentally, they both came from the Amherst, N.H., area originally. Howard plans to "work around the place," "do some traveling, etc." . . . **Jose C. Bertino** (naval and mechanical engineer) sent me an invitation to attend a meeting of the Central Argentine Engineers' Society held in Buenos Aires on October 6. This meeting was arranged for Jose to speak about M.I.T. and its service to civilization and the economy. In addition to his talk about the Institute he showed two movies: 1) "Men of Science" depicting some of the laboratory facilities at the Institute, and, 2) a film showing the student life, activities, etc. . . . We regret to announce the death of **Michael F. Boyle** of Longmeadow, Mass., on August 4, 1961.—**Herbert L. Hayden**, Secretary, E. I. du Pont de Nemours and Company, Leominster, Mass.; **Albert S. Redway**, Assistant Secretary, 47 Deepwood Drive, Hamden, 17, Conn.

'24

Home, temporarily: It is now possible to report officially that the **Lehrers** are, indeed, home. Had lunch with **Ray** recently at the luncheon club atop the Parker House, and amazingly enough, after all that round-the-world high living, he doesn't look a bit like a butter ball. He claims the heat in India took off all he'd gained, the sweat box treatment. Now, after three months at home, the **Lehrers** are getting restless again. . . . Society Note: Mr. and Mrs. **Herbert R. Stewart** announce the marriage of their son, Robert, to Miss Allison K. Stewart. Miss Stewart is the daughter of Mr. and Mrs. Horace K. Stewart of Garden City, Long Island. The wedding took place in the Episcopal Cathedral at Garden City on September 9. Robert is an engineer with Hazen and Sawyer, consulting engineers of New York City. You know, that's an awful lot of **Stewarts**. . . . Biographer: Earlier in the summer Herb officiated at a ceremony of quite a different sort. Dr. John G. Trump, '33, famed high-voltage expert and professor of electrical engineering at the Institute, was awarded the prized Lamme Medal by the AIEE. Herb was chosen to present the biography.

News of the Interior: Professor **Thomas K. Sherwood** has had all sorts of jobs and honors as one of the country's top chemical engineers, but one turned up recently that was new to your secretary. He is consultant to the U.S. Department of Interior Saline Water Program. That inte-

rior saline can be bad. . . . Business Note: Some 25 years ago **Delbert E. Replegle** founded Electronic Mechanics, Inc., in New Jersey. That must have been one of the first companies to use that word which has now become so common. Now it has merged with the Mykroy Manufacturing Company, Inc., to become the Molecular Dielectrics, Inc., of Clifton, N.J., which will "study the molecular sciences for new insulating materials." And the president, of course, is Delbert E. Replegle. Maybe you don't remember it, but Rep was born in Alaska, and before coming to M.I.T. spent four years as superintendent of an Eskimo reservation.

Time to Retire: Not many of your classmates are starting new businesses these days. Many of us are thinking ahead to retirement. It comes up for **Peter C. Dirksen** next February 1. With New Bedford Gas and Edison Light Company, since 1924, Pete started as a mechanical engineer, became general manager in 1950 and vice-president in addition three years ago. After retirement he will continue as a director. Pete has been very active in community affairs through the years: vice-president of the YMCA; past president of Kiwanis; member of the Boy Scout Council; advisory board of the Salvation Army; director of the Merchants National Bank; and co-director of the United Fund. No mention of any musical activities, as you'd expect of an old Tech Show orchestra hand. It's not clear how long Pete's successor will keep the job. He's another M.I.T. man, Class of '21!

Fire! In mid-summer a select group met at Woods Hole for several weeks to take a scientific look at fires. Fire experts mingled with physicists, mathematicians, and all manner of scientists to see what basic science has been up to recently and how it can help. Sponsor was the National Academy of Sciences' Fire Research Committee headed by Professor **Hoyt C. Hottel**, M.I.T. chemical engineer. Can't tell you what they came up with, as no report has come through after the fact. . . . College Benefactor: This fall **Paul J. Cardinal** started paying college tuition for the seventh young Cardinal! And one more to go. Paul has just been elected treasurer of the Drug, Chemical and Allied Trades Association. With **Griff Crafts** as chairman of this year's convention and **Bill MacCallum** putting on their movies, '24 was well represented.

Finale: At the first Alumni Council meeting of the year in late October, **Russ Ambach** read a resolution on the death of **Frank Barrett**, former member of the Council and president of the Alumni Association. Russ headed a committee composed of the six '24 men who are Council members. He said, in part: "Through the years Frank and Kay rarely missed a class get-together or an Alumni Day, often accompanied by the girls. They did much to make those meetings memorable. They will not be quite the same in the future." Those who knew Frank and Kay will realize what an understatement this was.—**Henry B. Kane**, Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

News items are extremely scarce as of the moment. It is with sincere sorrow that we report the death of **Wilbur S. Colby** at his home in Beverly, Mass., on September 17. Bill had been sick for some time and had retired from Stone and Webster Engineering Company in Boston because of illness. The American Concrete Institute conferred an achievement award on him for his design of a circulating water intake unit installed beneath the water level in the Mississippi River for power generation. It was the first such unit to have been put into service in the nation. Bill leaves his wife, Mrs. Doris Nichols Colby, to whom I am sure every member of the class extends sympathy.

It may be of interest to many of you to know that **Bill Asbury**, Vice-president of Esso Research and Engineering, has agreed to serve on M.I.T.'s Visiting Committee for Sponsored Research. It is a real pleasure to me as director of our Division of Sponsored Research to have Bill on this particular committee. General Jimmie Doolittle, '24, is the Chairman for the third year, and we will be putting Bill to work in the near future.—**F. L. Foster**, Secretary, Room 5-105, M.I.T.

'26

There's nothing like a deadline when it comes to writing class news. You know how I knock them off when I have to do it in a 45-minute jet flight. Today on a holiday, I have put the job off until bedtime so now I have the deadline, unless I want to stay up all night. With this needed incentive, I have figured out an easy way to put this month's notes together. In looking through my file I find a collection of stubs from our reunion notices and on many of them our classmates wrote notes. It isn't a ready made batch of class notes I'll never find one. In addition there are a couple of letters replying to the reunion notice. Why don't we see what they have to say? I'll list the classmate's name after his comments. "Very sorry I will not be able to see you and the rest of the '26 class at the reunion this year. I had hoped to be able to, but can't make it. I'll be there in spirit and look forward to another reunion. Five years sure slipped by quick since I attended the reunion. Best regards, **Martin E. Staley**, San Antonio, Texas." "I am scheduled to attend graduation exercises of my daughter-in-law at Beloit College in Wisconsin. Sorry to miss the 35th. **Morton P. Woodason**, Sharon, Mass." "Sorry to miss the reunion, but expect to be in Europe on those dates. **Edward B. Stallman**, Millington, N.J." "I will not attend the reunion because one daughter and three children arriving from Texas on June 8, one daughter due to have a baby, one daughter-in-law due to have a baby, **Robert W. Richardson**." "Sorry, I would so much enjoy being there. **John H. Wills**, Chicago, Ill." "Gosh, how I hate to miss it. Give all the

boys my best—see you next year. Best regards. **A. L. Entwistle**, Louisville, Ky."

Here's a letter I received from **Jim Drain**. "Dear George, I was very sorry that I was not able to see you at our 35th Reunion but a conflict with the graduation of my son, David, made it impossible for me to attend. I understand the reunion was a great success. **Leonard Milano** dropped in to see me and pretty well covered the whole reunion. Of the things needed to make a reunion a success, all were present, according to his account. On second thought, I believe he told me he did some singing also. Leonard appeared to be horrified at the number of wives that attended but in the same breath he told about the beautiful creatures he had met and also that his wife attended part of the celebration. Sincerely, Jim." This seems to use up our allotted space but unfortunately the bell has tolled again—this time for **Marron Fort**. **Bob Dawes** sent me the clipping: "Newburyport—Dr. Marron W. Fort, 55, an official of the State Department and former city councilman and school committeeman in Newburyport, died Monday in Washington, D.C. He recently returned from Pakistan where he was deputy administrator of the State Department's international co-operation administration. A chemical engineer he was graduated from M.I.T. and was a former vice-president of the A. and J. G. Caldwell Company, distillers. Funeral services were held in Washington Cathedral. Burial was in Arlington National Cemetery." For the class, I extend our deep sympathy to Mrs. Fort and Marron's family. He was one of our most brilliant and dedicated classmates. From the notes I have quoted you see why I keep asking for you to write—so how about it? This being Columbus Day I nearly forgot that this is the December issue, so Merry Christmas.—**George Warren Smith**, Secretary, c/o of E. I. Du Pont de Nemours and Company, Inc., 140 Federal St., Boston, Mass.

'27

Samuel Levine is the recipient of a Superior Performance Award for his work as acting division chief in the Department of Commerce, U.S. Patent Office. As a patent examiner, Sam performs professional, scientific and technical research in examining applications for patents in the art of motors. . . . During a double-header game at the Busch Stadium in St. Louis recently, a friend of mine got in conversation with a fan in an adjacent seat who, it developed, was **George Bergman**. George is associated with the Joy Manufacturing Company in St. Louis.

It is with regret that we announce the death of Captain **Jerome F. Donovan**, on September 15, in Weston, Conn. We have no details. Jerry was a naval officer during his studies at M.I.T. and continued in the Navy thereafter, serving in all ranks from ensign through captain. In 1944-45, he commanded the AA Cruiser U.S.S. San Juan in the Pacific. From 1946-49 he

commanded the U.S. Naval Mine Depot at Yorktown, Va. He retired in 1949, after which time he became interested in local civil affairs and in volunteer work for the deaf.—**J. S. Harris**, Secretary, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

Jim Donovan, our traveling reporter, sent in the following note dated July 31: "Last week I was in Sarnia, Ontario, Canada, and had the pleasure of seeing **René** and **Pam Simard**. I had the pleasure of talking with Pam for quite a while and heard about René's activities as a trustee of the local hospital and various other activities, to say nothing of Pam's own unbounding energy showing up and taking care of a large family and starting the Teenage Bowling League, and being chairwoman of the local club dance committee. René was so busy that he ducked out of one meeting to say hello, answered his telephone while talking with me to arrange another meeting and left immediately!" . . . A news item in "The Blade," Toledo, Ohio, for August 3 tells us that **Robert O. Spurdle** (Course X) has been named patent adviser in the R&D Department of Sun Oil Company. He joined Sun Oil Company as director of the Patent Division in 1942.

We have two Proctors on the class roll and, oddly enough, news from both of them at the same time. A public information release of the Johns-Manville Corporation announces that our good classmate, **Philip B. Proctor** (Course II) Manager for General Quality Control, was inducted into the company's Quarter Century Club at a dinner held in the Commodore Hotel, New York City, on September 21. Our congratulations, Sir! . . . **Robert J. Proctor** (Course X) has recently joined the staff of Crocker, Burbank and Company Association, Fitchburg, Mass., as development engineer. Prior to this he was with Bauer Brothers Company in Springfield, Ohio. Bob, we are delighted to know that you are back East with us. We wish you every success in your new position!—**George I. Chatfield**, Secretary, 11 Winfield Avenue, Harrison, N. Y.; **Walter J. Smith**, Assistant Secretary, 15 Acorn Park, Cambridge, Mass.

'29

Henry Giles is heading up the Malden (Mass.) Redevelopment Authority. Henry was formerly chief engineer for the Connecticut Department of Public Works and is an authority on redevelopment and rehabilitation problems. . . . **Devereaux Martin** has been named general operations manager of Estey Electronics, Inc., Torrance, Calif. As manager, Devereaux will direct the engineering, manufacturing, and purchasing activities of the Estey plant. . . . We learn that **Joe Speyer** has been elected president of the Boston Chapter of the American

Society of Chartered Life Underwriters for the coming year. Joe had formerly served as vice-president of the organization. He is currently general agent for the Berkshire Life Insurance Company of Boston. . . . **Romeo Guest** writes from Greensboro, N.C., that he has changed the name of his outfit from United Constructors, Inc., to Romeo Guest Associates. He says, "While we will be handling construction contracts for leading industries in a wide geographical area, we expect to continue our concentrated efforts to create through industrial promotion our goal of a thousand new industrial jobs in North Carolina annually."

From Andover, Ohio, we learn of the death of **Nicholas Easley**, Course IX-B, in August of this year. He had been in poor health for some time, and had moved to Andover from Cleveland four years ago upon retiring from business.—**Fisher Hills**, Assistant Secretary, 62 Whittemore Avenue, Cambridge 40, Mass.

'30

A recent bulletin from the Institute reveals that I have unwittingly discriminated against two of our classmates whose labors on behalf of SCF have been producing noteworthy results. The list of SCF workers in the July notes should have included the names of **Wally McDowell**, who is Binghamton Area Chairman, and "**Wede**" **Wedemeyer**, who is St. Louis Area Chairman. As of the end of September Wally and Wede had achieved 65 per cent and 94.4 per cent of their respective quotas. Soliciting funds for SCF can be an enriching experience, even where no monetary advantage to the Institute results. In the course of a recent telephone call to a prospect, I learned that the potential donor (happily not a member of the class of '30) had departed for South America some five years ago leaving behind a wife and small son and hadn't been heard from since.

A few weeks ago I ran into **Jim Dakakis'** brother George, '39, who lives near me. Jim and George have been running the Dollar Radio Company in Mt. Vernon for a number of years, but a little while back Jim decided that he had had enough of the radio business. He took a master's degree in education at Columbia and then obtained a New York State teacher's license. This fall he is embarking on a new career as a science teacher at Thornwood High School. Jim's Number One daughter, Phoebe, is a junior at Duke with an eye on a State Department career. His second daughter, Susan, who is a sophomore at Cornell Engineering School, achieved the scholastic distinction of ranking seventh among the freshman engineers last year. Son Sophocles is in junior high school and a member of the school band.

This month only two of my information forms came back. One was from **Cecil Dunn** who, as many of you know, is an associate professor of industrial microbiology at the Institute. In the extra-curricular area, Cecil is a member of the R.O.A. Research and Development Com-

mittee and a counselor of the Refrigeration Research Foundation. His daughter Elizabeth Dunn Hills, who graduated from Bates, has three children. His son Ronald is a senior at University of Arizona. . . . The other response was from **Herb Ehrgott** who lives in Washington. After 26 years in the U. S. Army and Air Force, Herb retired as a brigadier general in 1956. Thereafter he worked for five years in France and Viet Nam for the engineering and architectural firm of Tippetts, Abbott, McCarthy and Stratton. He has three daughters, Mrs. Kenneth Cooke, Nancy, 14, and Joan, 11, and a granddaughter, Jennifer Cooke. His oldest daughter graduated from Duke and is doing editorial work for the Raleigh (N. C.) Times and Observer. . . . **Richard Harwood** (Harwood Engineering Company, consultants on electronics and military weapons) has initiated a new enterprise, a periodical entitled Harwood's Missile Research Index.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N. Y.; **Ralph W. Peters**, Assistant Secretary, 249 Hollywood Avenue, Rochester, N. Y.; **Louise Hall**, Assistant Secretary, Box 6636, College Station, Durham, N. C.

'31

A thousand apologies for slipping up on the Class News for the last issue. Somehow, in the midst of moving, the notice that they were due was overlooked. Those of you who were unable to attend our 30th Reunion, June 9-11 at the Wianno Club on Cape Cod missed a good time. The Wianno Club is an ideal spot and despite early threats, the weather man smiled on us. It was good to see the following classmates: Mr. and Mrs. H. D. Gurney, Mr. and Mrs. Ralph H. Davis, with Wendy and Robert; Mr. and Mrs. Richard K. Baltzer; Charles W. Rankin; Mr. and Mrs. Howard L. Richardson; Mr. and Mrs. John W. Lane; Dr. and Mrs. Harry Landsman; Mr. and Mrs. Henry E. Baratta; Mr. and Mrs. Claude F. Machen; Mr. and Mrs. Myron F. Burr; Mr. and Mrs. Byron N. Martin; Robert G. Marcus; Mr. and Mrs. Donato A. Grieco; Mr. and Mrs. Henry G. Hartwell and family; Mr. and Mrs. M. M. Cannon; Mr. and Mrs. C. Randolph Binner; Mr. and Mrs. Arthur D. Bertollett with daughter Paige; Mr. and Mrs. A. H. Schutte; Mr. and Mrs. Emile P. Grenier; Mr. and Mrs. William H. Jacobs; Mr. and Mrs. Albert R. Pierce; Mr. and Mrs. Frank L. McKnight; Mr. and Mrs. Edward F. Coy; Mr. and Mrs. B. W. Steverman; Arthur C. Donovan; Mr. and Mrs. Louis A. Gallinari; Mr. and Mrs. Gabriel S. Cristofalo; Mr. and Mrs. Robert Sanders, with daughter Dayle and son Charles; Mr. and Mrs. Edwin S. Worden with daughter Elizabeth; Mr. and Mrs. Arthur T. Newell; Mr. and Mrs. Thomas A. Fearnside and their daughter; Ray Bird; Mr. and Mrs. Charles Broder; Mr. and Mrs. Harry A. Parris; Mr. and Mrs. Bernard T. Stott; Mr. and Mrs. Meyer P. White; Mr. and Mrs. G. M. Roddy; Mr. and Mrs. John R. Swanton, Jr.; Mr. and Mrs. K. J. Germeshausen; Ernest B.

Whitworth; Mr. and Mrs. Leslie K. Snowdon and son, Bruce; and Mr. and Mrs. Wyman P. Boynton.

A number of classmates who had planned to attend the reunion were forced to change their plans at the last minute, much to everyone's regret. These included: **Edward M. Heffernan** and **Carl O. Svensson**, both of whom telegraphed their regrets and best wishes; **Ed Hubbard**; **Art Lutz**, who wrote, "Believe me, I'd like to be there. So would **George C. Humphreys** (who is a captain in the Navy at the Pentagon), and **Glenn Goodhand** (who is a colonel with DCSLOG). Please say 'Hello' for us to the rest of the gang." Art works with Army Ordnance as a civilian executive for procurement and production, Guided Missiles, Branch Industrial Division; **Jerry Cook** had to go to Hawaii on business at the time, but wrote that "I would far prefer to be with my classmates at the Wianno Club. Best regards to all."; **Jim Fisk** wrote "I would certainly like to see you all again but I can't get away."; **Al Coleman** ran into conflicts; **Chuck Turner**, as club commodore of the Blue Water Sailing Club at Scituate, had to be on hand for their Spring Cruise and Regatta. Chuck wrote: "The binoculars presented to me by the 25th Reunion group are still seeing service and are sincerely appreciated."; **Jack Allia**; **John H. Dodge**; **Norm Fitzgerald** wrote: "Must miss this grand reunion with all the wonderful fellowship and nostalgia. Have a priority obligation to vacation with my three boys in this interval between regular session and summer session. Norman Scott is a junior at the University of Texas, and Carl Hanson is a sophomore at M.I.T., and Gerald Texas is in the fourth grade. We are meeting in New York to sail together for 10 days of vacation in Bermuda. My sincere regrets but high regards to all my classmates of 1931, in which Mrs. Fitzgerald joins me."; **Shel Smith** sent best regards to all; **Horace S. Ford, Jr.** was sailing in the Off Soundings Club Regatta; **Jack Gordon's** son graduated from high school that Saturday (June 10) and a daughter graduated from college the following Tuesday. He sent regards to all; **Irving W. Finberg** received word that he would be in command of the ROTC Summer Camp at Fort Belvoir, Va., and had to report there on June 10. His best regards and best wishes for a successful reunion were sent to all his classmates.

Ben Mesick, Colonel, U.S. Army (Ret.) and professor of mechanical engineering (teaching "Materials and Machine Design") was kept away by his teaching duties at the University of Arizona in Tucson, but he sent regards to all, especially **Helge Holst**; **Bob Martin's** son was graduating on June 10; **Charles Terwilliger, Jr.**, promises to be at the 50th; **Charles H. Norris**, Carnegie Visiting Professor at the University of Hawaii during the spring term, did not return from the Islands until July 1; **John B. Coyne** was away during June and July; **Henry B. Ahlberg** was attending his son's graduation in Chicago the same weekend; **Lou Hesselschwerdt** was not able to attend; **Juan J. Bolanos** was called to Houston on business but sent greetings; **Dave Motter**, who wrote that his body was in Denver at a committee

meeting but whose spirit was with us at Wianno; **Gene Macoy** wants to know how many grandfathers there are in the class; **Horst H. Orbanowski** sent his best regards to all classmates; **J. R. Gardner** couldn't attend; **John McNiff**, **Harry D. Kamy**, sent their regrets; **Harold J. Davis** mentioned how much he had enjoyed the 25th; **Don Holden** sent his best wishes for a happy time; **Stu Knapp** had a son graduating that weekend; **Syd Milligan** left for Europe the end of May; **Dick Baldwin** couldn't make it; **John T. Sherman** had to be in Denver; **Paul T. Semple** couldn't squeeze it in; **E. J. Ducayet** was just returning from the Paris Air Salon; **Fred Elser** was planning to take his son to the Philippines but sent regards to all, especially **Henry G. Hartwell**; **A. D. Vincent** is now living in Florida; **Clifford A. Harvey**, **H. E. Raymond**, and **J. Harold Genrich** could not attend; **Rex I. Heinlein, Jr.**, gave **Ralph Davis** and the others who spent so much time on class activities a pat on the back, with which we agree; **Al Sims**; **George Cohen's** son was getting married week of June 18; **Admiral Cato D. Glover**, U.S. Navy (Ret.) whose present address is 1904 North Broad Street, Camden, S.C. He asked that this address be sent to the Alumni Association. **J. T. Howard**, **Arnold C. Childs**, and **Enio O. Persion** could not attend; and **Dick Mason's** older daughter was graduated from Beloit College on June 11. Dick has just returned from Stuttgart, Germany, where he visited with **Bill Stellrecht**. "He has a delightful home and family—three beautiful teenage daughters, and would welcome any M.I.T. men who visit Stuttgart." It was good to see **Bob Leadbetter**, who flew up from New Jersey to spend part of Sunday with us. . . . Your officers were re-elected at the reunion: **Howard Richardson**, President; **Claude Machen**, Vice-president; **Bill Jacobs**, Treasurer; yours truly, secretary, and **Gordon Speedie**, Assistant Secretary.

A note from Mrs. Alice Ormsby Andreani, **Roberto Andreani's** mother, tells that the Rome Aeroclub presented Mrs. and General Andreani with a gold medal in Roberto's memory a year after his death. The next year, the Aeroclub awarded a cup to the winner of their competition in Roberto's name, and this year a new airfield has been dedicated to Aero-modellism in his name. Following is a translation of the opening paragraphs of an article which appeared in *ALI (Wings)*, an Italian aeronautic magazine, April 16-30 issue, 1961. "Opening of the field 'Andreani' at Urbe—When one speaks of a show as successful, this means that it has truly interested and aroused the admiration of all those present. If this definition is right, then we can speak in these terms about the dedication of the field for model planes—The Andreani. The reason for the dedication of this field to Roberto Andreani has a particular significance for all of us as well as for the Roman model plane flyers: the loyalty, the passion, and the unselfish devotion for a sport pure and noble like ours must be pointed out and stressed. These words seem affected and rhetorical, but they are not so at all. There are indeed few sports that are uncorrupt and pure, and by this we mean sports in which the greatest reward is the

satisfaction derived for oneself and the joy of competing with the strongest. Roberto Andreani knew how to give, to whomever knew him personally or by name, the feeling of the greatness of model airplane flying, a sport looked upon patronizingly and ridiculed only by those lacking in spirit and intelligence, and by those who have never known the moral reward from the fulfillment of a personal aspiration.

"At precisely 10:30, Sunday, February 26, Mrs. Andreani, mother of our dear deceased model airplane flyer, cut the tri-color ribbon at the dedication of the field to open the show which began with flights of model planes, flights which followed one another with extreme regularity and continuity—evidence of a good organization." The magazine article had pictures showing Mrs. Andreani cutting the inaugural ribbon, assisted by General Pantanelli; as well as views of the new field. All of us who knew Roberto during our undergraduate days can readily understand why the Rome Aeroclub continues to honor his memory. The Class of '31 extends its deepest sympathy to Mrs. Andreani in the loss of her husband, General Andreani, on January 16.

Although he couldn't attend the reunion because of business commitments, **John MacBrayne** wrote: "**John T. Harrison**, who is also with our company (Union Bag-Camp Paper Corporation), and I have talked a great deal about the reunion, and the last I heard John was still hoping to attend. If he does, he can convey my best to all of you fellows down there. If not, just a personal word: There are four MacBraynes, our children being Jack, who is a freshman in high school, and Pam, who is three years younger. We live in Mountain Lakes, N.J., and I have my offices in the Woolworth Building in New York. I'm sure that you fellows get to the city once in a while, and we would be delighted to have you call us so that we can get together for lunch or dinner when you are in this vicinity." . . . **Art Fuller**, who couldn't attend because of previous family arrangements, sent his best wishes to "the 25th Reunion Gang, **Myron Burr**, and **Gordon Brown**."

Sydney R. Miller has been elected vice-president, Quality Control and Research of Avon Sole Company, and **Dick Baltzer**, vice-president of the same company, has been re-elected a director. . . . An article in the Boston Globe tells that **Bob Wilson** was honored at a dinner by Metropolitan Boston store managers of Sears upon his return to the Boston area. . . . On August 6, the Lowell Sunday Sun announced that **Harold J. Davis** had been elected a fellow of the American Society for Quality Control. Harold is with Raytheon. He previously served as a quality control engineer with Sylvania, and inspection engineer with the U.S. Signal Corps.

Mrs. Harold S. Wilkins, who obtained her degree in architecture with our class, was elected president of the Belmont Garden Club, according to a recent article in the Belmont Citizen. . . . Instead of going to Vassar this fall, as reported in March, Martha Camilla Roberts was married on September 2 to John Detwiler in a

beautiful church ceremony in Short Hills, N.J. Her father, **Bill Roberts**, was every inch the proud father as he escorted his lovely daughter (who is the image of her mother) down the aisle. My wife and daughter and I had the pleasure of joining their many friends for the reception at their home.

Ed Coy has been named vice-president and director of marketing for the Military Productions Division of Hoffman Electronics Corporation. Ed's responsibilities include selling Hoffman's special experience and capabilities in navigation, communications, radar, etc., to the military agencies. His new address is 1215 South Orange Grove Boulevard, Pasadena, Calif. . . . **Denis M. Robinson**, President of High Voltage Engineering Corporation, was in the news last July when he announced that his company increased their net earnings by three per cent over the 1960 figure for the six months ending June 30.

Lombard Squires has just been appointed assistant general manager of DuPont's Explosive Department to administer the company's activities for the Atomic Energy Commission, according to a DuPont news release. . . . and **Gordon Brown**, Dean of Engineering at Tech, has been elected to the Board of Overseers of the Thayer School of Engineering at Dartmouth College. . . . Next month you will be hearing from Gordon, our assistant secretary, alone as I'm leaving for England on the 23rd of October. I will be there about two weeks on business and since I have persuaded my wife to accompany me, we will be able to take a short vacation after the business part of the trip is concluded. We hope to spend a day or two in Amsterdam, another few in Paris, and then will probably head for Italy. Have made a note of Bill Stellrecht's address and will certainly look him up if we get to Stuttgart.—**Edwin S. Worden**, Secretary, Minute Man Hill, Westport, Conn.; **Gordon A. Speedie**, Assistant Secretary, 90 Falmouth Road, Arlington 74, Mass.

'32

A loan fund has been established at West Virginia University in memory of the late **Charles B. Seibert**, former professor of electrical engineering, who died last June 12. Administered by the Student Affairs Office, the fund will be used for short term loans to deserving students majoring in electrical engineering. The fund was established by contributions from friends of the late professor. A native of Berkeley County, Mr. Seibert joined the University faculty as an instructor in 1934. He became a full professor in 1951.

Eugene P. Worthen has been appointed assistant technical manager of Bethlehem Steel Company's shipbuilding division. In this capacity Mr. Worthen will assist in the management of the shipbuilding division's central technical department, which provides engineering and research services for Bethlehem's 10 shipbuilding and ship repair yards. The

central technical department is located at the Quincy yard. When the central technical department was organized in 1944, Mr. Worthen was appointed chief engineer in charge of machinery design. . . . A recent letter from **Rolf Eliassen** reports, "we're pretty settled in Palo Alto, our home is ideal and is all set for gracious living indoors and outdoors. My office is not all set up yet, but it will be good with a pleasant view of flowers and the chapel. Weather here has been perfect, sun every day to warm it up to the 80's with low humidity and then in the 50's every night for blanket sleeping—perhaps just a little too cool, but I'm not kicking after what has been reported in Boston's weather. My address at Stanford University is: Room 269, Engineering Building, and my home address is: 1280 Hamilton Avenue, Palo Alto, Calif."

Tom Sears reminds me that it is not too soon to start thinking about our 30th Reunion. It will be held at Chatham Bars Inn on Cape Cod from Friday, June 8, to Monday, June 11, 1962. We have never held a reunion on Cape Cod so it should be a delightful and pleasant experience for all of us. Wives are not only welcomed but they are cordially invited, and all of us who attended our 25th Reunion will remember that they contributed much to our festivities. Chatham Bars Inn is a resort hotel with full facilities including golf immediately available. You will be hearing more from the Reunion Committee within the next few months. Meanwhile make a note of the dates and plan to join us.—**G. Edward Nealand**, Secretary, Room 3-137, M.I.T.; **Elwood W. Schafer**, Assistant Secretary, Room 10-318, M.I.T.

'33

The Season's Greetings to you. It is a little early for Christmas, but equally late for the beginning of the Review year. A modest project called the Second Century Fund cuts into both curricular and extracurricular pursuits, but it is well worth it to keep your alma mater right up front. Allegedly one of last year's graduates, on his first day of work, said to his boss, "I have a solution; who has a problem?" If you have the problem of your part in SCF, the clear solution is to pledge now and pay later; your credit and intent are both good!

Honors for the month go to **Gordon Bunshaft**, distinguished architect, who received the Medal of Honor from the American Institute of Architects for his design of Lever House in New York. . . . Of special note too is that **Lawrence Parsegian** has been named the first Rensselaer Professor of R.P.I. with the assignment of further developing interdisciplinary centers. This is a relatively new and important trend in technical education and research.

Congratulations go to three of our rising classmates: **Lynn Shurtleff** has recently become vice-president of Investors Counsel, Inc. Lynn has long been identified with investment analysis. **Art Hungerford** made a real break from prac-

ticing the art of educational television to professor at Penn State University, where he will teach television, radio, and speech, and concern himself with the use of closed circuit television in the classroom. State College, Pa., is a beautiful town in the geographical center of the state and equally inaccessible from all parts.

These notes are being written in Dallas, a far piece from Cambridge, but beautiful and really accessible to most any place in the U.S. or Mexico. . . . And last but not least, congratulations to **Ed Gilliland**, who still educates chemical engineers with distinction; Ed has been named to the President's Science Advisory Committee. . . . Heard from the public platform; **Emile Bustani**, contractor extraordinary in the Middle East and politics, spelled out to a New York audience his plan for a broad development program for the whole Arab East, to be paid for out of oil profits. No small program! The annual yield is estimated at over \$200 million. . . . **Dr. William Harper**, Dean of the Texas Chiropractic College, spoke on "Research in Neurology" on Cape Cod of all places. . . . **Morris Cohen** will give the Howe Memorial Lecture in February when the metallurgists get together for their 91st annual meeting in New York City.

Recent moves of note: **Courtenay Marshall** from the Barbados to San Marcus, Texas; and our **Dick Morse**, out of Washington after completing his tour directing research for the army, to a period of leisure before returning to the industrial battle; he was seen late in the summer sampling a bar in Bangkok. . . . Good taste decrees it inappropriate for a class secretary to introduce a personal note. But some unknown group presented me, in the name of the class, with a beautifully inscribed silver bowl and a pair of candlesticks. Gratitude is difficult to express in words; Cynthia, who did much to make things tick at our 25th and who has since become Mrs. Kimball, will tell you I was just plain shook up for days after the gift arrived. We would welcome a chance to fill the bowl to the brim for you if you will come visit us at our new home in Andover, only a short drive from the summer residence in Exeter, N.H., of the senior statesman of the class, **Warren Henderson**.—**R. M. Kimball**, Secretary, 2 Robandy Road, Andover, Mass.

'34

Sam Joroff sent us a wonderful letter from Turkey, after a little prodding. He writes: "This will tell you briefly what brings me to this very interesting part of the world. At the beginning of this year, the United Nations asked me to accept an appointment as regional planning expert to the Government of Turkey. This is part of the technical assistance operations of the U.S. to newly developing countries. Because of the challenging technical and professional aspects of this project, I decided to accept the position and take a leave from my job as deputy director of planning for the New York

City Department of City Planning. My major responsibilities will be to advise the Ministry of Reconstruction and Resettlement on the preparation of a plan for the metropolitan region of Istanbul, and possibly a plan for a resource development region in the southeast portion of Turkey. Because the Istanbul region is the most important economic region and is faced with every type of major urban development problem, I am now assisting the director of the Istanbul-Marmara regional planning office. It is a pleasure working with the Turkish staff—the planners, architects, engineers and economists. From what I have observed to date, Turkey has a tremendous potential for growth and progress.

"Istanbul is a city of 1,600,000, lying on both sides of the beautiful Bosphorus. The European or Byzantine Constantinople spreads over seven hills. Here the 15th Century lives side by side with the 20th Century. It is a city where East and West meet and mix—and with what an impact! On busy streets donkeys, horse carts and porters with heavy loads on their backs, compete for space with cars, taxis, trucks and buses. There is the contrast of old Turkish buildings and narrow streets with modern apartment houses and hotels. Where New York City has a skyline of skyscrapers along the Hudson River, Istanbul has a striking skyline along the Bosphorus of dome shaped mosques, flanked by slender minarets.

"My wife and 13-year-old son are with me. He is entering Robert Academy, an excellent preparatory school, preparing for Robert College. The school was founded 90 years ago for Turkish students, with instruction in English. I think this project will keep me here about a year. It would be wonderful to see any classmates who might be passing through." Believe it if you will, this address of Sam's actually works: Bolge Planlama Burosu, Imar Mudurlugu, Istanbul Belediyesi, Istanbul, Turkey.

Fred Vaughan has finally been prevailed upon by this secretary's many urgings to tell something of his experiences in getting into his own business. He took the plunge in 1955 when his former boss sold him the machinery of the paper box end of the business. With it came a few loyal customers, now almost all replaced. He was fortunate in enticing back the previous superintendent. This man knew the machines, and being all over 35 years old, he knew their eccentricities (no pun intended). What with such help and 10 factory workers Fred was able from the outset to get some sleep on weekends. Now the machines have all been replaced with modern automatic ones, and he's just bought his 14,000 square foot factory building. Lest he become complacent, he pushes his business to the 100 employee mark at times and still holds down most of the executive positions himself. His shop was recently organized by the right union, which he considers a stroke of fortune as this allows work to be done for many new customers whose unions insist on union shop suppliers. Fred is not only owner of Suffolk Converting Company, the set-up box industry described above;

he recently started Educational Enrichment, Inc., at the same address in Lindenhurst, Long Island. What does this new concern do? They are making mathematical games for ages 6 to 12. His two boys, 10 and 12 years old should lend added interest to this educational project. So far the boys have not shown a desire to work in the box factory.

Christmas is a time we think of many of our friends and wish them well for the coming year. We four secretaries send you our best and will continue to try to keep you in touch with each other. We pass along directly and by proxy those Christmas greetings and New Year's wishes. We are running out of news of our classmates. Most of you are too modest to write us a word. Too much modesty is unfriendly, yet few of you really feel, or would you like to be considered, unfriendly. You don't have to have reached "the top" to warrant a place in these notes or in your classmates' hearts. There is always some little thing you can tell us which will bring your personality before us again. The fact that you are still alive is news, good news. We are getting to the age that being alive can't even be taken for granted. Certainly you don't want to appear in these notes for the first time when you are no more! Show your good will toward your classmates and drop any one of us a line. Merry Christmas.—**J. P. Eder**, 1 Lockwood Road, Riverside, Conn.; **G. K. Crosby**, Longwood Road, Huntington, W. Va.; **H. E. Thayer**, 415 West Jackson Road, Webster Groves 19, Mo.; **Malcolm S. Stevens**, P.O. Box 93, West Barrington, R.I., Co-Secretaries.

'35

The First Annual Class Golf Championship is still being played and is almost down to the finals. **Leo Beckwith** established himself as one of the finalists by eliminating **Bill Barker** in a very close semi-finals match at Kernwood on October 8. The wives joined in to make this a happy foursome on a beautiful sunny day. Earlier that week **Leo** and **Allan Mowatt** played in a foursome at Kernwood and had the thrill of seeing a hole-in-one made by another member of their group. The other finalist in the Class Tourney will be the winner of a match between **Hal Bemis** and **Allan Mowatt**.

Robert A. Olsen, Assistant Professor of Industrial Engineering at Pennsylvania State University, spent the summer in Monterrey, Mexico, as a consultant to Mexican industry. The program in which he participated was sponsored by the ICA and he was working directly with practicing engineers in Mexican factories. Bob drove his family with him, going by way of New Orleans, San Antonio, and Corpus Christi. We hope to include an account of his summer next month.

The M.I.T. Second Century Fund campaign has a number of '35ers working in key spots throughout the country working hard to put it over the top. And still more of our classmates have come

through with some excellent gifts. Ranking near the top of the campaign and certainly tops for our class is the \$300,000 given by **Rufus Applegarth, Jr.** We stand in awe and admiration. Rufus lives with his family in the Philadelphia area and is vice-president of National Aero Corporation (NARCO).

John C. Russell, engineering manager of mining and metallurgy for Singmaster and Breyer, Inc., of New York City, was admitted to partnership in May, 1961. Singmaster and Breyer are metallurgical and chemical process engineers, an affiliate of the Fluor Corporation, Ltd. . . .

Robert L. Chase of Brookhaven National Laboratory has designed a new, fully-transistorized Multiple Coincidence Unit which Cosmic Radiation Labs of Bellport, New York, is producing for commercial markets. . . . **Thomas F. Morrow**, Vice-president, Defense and Special Products for Chrysler Corporation, was general chairman of the Third Annual Industry Missile and Space Conference and Aerospace Exposition held at Detroit in July.

. . . **Chester A. Siver** was recently promoted to manager of marketing of the Chapman Valve Manufacturing Company in Springfield, Mass. . . . **Beverly Dudley**, now with the Advance Development Group at Laboratory for Electronics, Inc., read a paper entitled "Interpreting the Significance of Research" at the recent IRE Conference on Technical-Scientific Communications in Philadelphia. . . .

Gerry Golden reports a chance meeting at Logan Airport with **Earle Megathlin** and his wife, Polly. Earle is currently director of purchases at Raytheon Company, Portsmouth, R.I.

Hal Everett reports **Raymond A. Schneck** and his wife, Eunice, live in New Hyde Park with their 10 children ranging in age from 17 to 2 years. Raymond is owner of Standard Radio. . . .

Donald F. Taylor is a salesman for Bethlehem Steel. His son Gordon, 13, entered Choate School this fall. . . . **Oliver Hoag** and wife Lucile live in Port Washington. They have three children: Thomas, 17, David, 15, and Nancy, 8. Olive is an executive engineer with Sperry Gyroscope Division of Sperry-Rand. He advises that his older son is attending Proctor Academy with the sons of two more of our classmates: **George P. Knapp**, who is with Mt. Hope Machinery Company, Taunton, Mass., and **Richard L. Hughes** of J. M. Ney Company, Hartford, Conn. . . . **Paul Cohen** may be the only member of our class with a child in the girls' dorm at M.I.T.: Barbara, '64. Paul is an engineering section head at Sperry Gyroscope.

Unless some of you write those promised letters within the next thirty days, the '35 notes will be pretty skimpy next month: specifically, I expect news from Hanover, N.H., State College, Pa., and Pittsburgh, Pa. Contact your nearest secretary, now.—**Allan Q. Mowatt**, Secretary, 11 Castle Road, Lexington 73, Mass.; Regional Secretaries: **Edward C. Edgar**, Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Elmer D. Szantay**, 6130 N. Kilbourn Avenue, Chicago 16, Ill.; and **Gerald C. Rich**, 673 Rosita Avenue, Los Altos, Calif.

'36

In addition to the group reported last month as having attended all or part of the reunion festivities, the following members of the class registered on Alumni Day: Herb Borden, Michael J. Lach, H. Leonard Mensing, George C. Moustakis, Malcolm Seymour, and Bob Worden. I am sure there were others but there is no record of their registration. Please let the secretary know of any omissions or corrections. I would like the list to be complete. The November Review carried an account of Alumni Day so you know that **Bob Worden** presented our class gift to the Institute. Everyone who has helped to swell the total may herewith take a bow!

Now for more on the Reunion: Invited to the luncheon on Saturday at Walker Memorial were members of the administration and many of the professors who were there then. Seating was by courses with the appropriate faculty included. It was a wonderful opportunity to review the past and to learn more of what is happening today. An official photograph was taken, and it will be fun at our next reunion to compare it with the class banquet picture taken at the University Club in our graduation year, 1936. I'll refrain from commenting on the state of hair, but methinks many of us are carrying about a few more pounds than then. Outside activities were unfortunately curtailed because of a downpour, but that didn't seem to dampen any spirits. Elbows were exercised, anyhow. In the evening we all gathered at the Faculty Club in our fanciest duds for dinner and dancing. There were orchids for the ladies and the music was good. My father used to comment that Tech men did nothing but dance, as far as he could see. They haven't lost the skill, either, as far as his daughter can see. All in all, the entire reunion was a memorable occasion, and our thanks go to **Vince Estabrook** and **Hal Miller** and their committee members for doing an excellent job.

Now for a few bits of news: Florence and **Ben Cooperstein** announce the arrival of Lois Nanci, a daughter, on September 7 to join three older sisters and a brother. **Malcolm A. Blanchard's** son Arthur is a freshman at the Institute this fall. Are there other offspring attending the Institute this year?—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass.

'37

Bill Harcum has been made director of research and development at the Eastern Research Center of the Robertshaw-Fulton Controls Company. Bill has had extensive experience in the development of aeronautical controls, and in the engineering of electronic, pneumatic and hydraulic control devices. He holds nine patents for automatic control devices, with two additional patents pending. Before joining Robertshaw-Fulton in 1958

as head of the Eastern Research Center's physics department, Bill was associated with Sperry Gyroscope as project engineer and engineering pilot in the field of flight control research. Later he served as consultant for the Kenyon Gyro and Electronic Company. In 1942 he was co-founder of Tactair, Inc. He is a member of the Institute of Aeronautical Sciences and the Franklin Institute. . . . **Evan Edwards**, assistant director of the engineering division of the Kodak Park Works of Eastman Kodak Company, has been named assistant director of the film services division. Evan joined Kodak Park as a project engineer in 1948. Four years later he became chief engineer in charge of machinery design. He was named an assistant director of the engineering division in 1953. In 1959 he participated in a one year special study on the use of mathematics and computers in analyzing business problems. He is a member of the American Institute of Electrical Engineers, the American Society of Mechanical Engineers and Rochester Engineering Society. Evan has been granted a number of patents relating to instruments and machinery. . . . **Frank Mather, 3d**, was chief scientist on a recent cruise of the research vessel "Crawford" of the Woods Hole Oceanographic Institution. The cruise from Cape Cod to Jamaica and back provided important new information on the distribution and spawning of large pelagic fishes.

During the summer my wife, Rose, and I enjoyed a visit from **Bernhard Schondorff** and his wife Friedl, of Erkelenz, Germany. Bernhard had not been to the Institute since graduation, and we enjoyed pointing out all the changes which have taken place in those intervening years. As Bernhard said, the Institute with all its new buildings has been greatly expanded and improved. It will be a wonderful experience at our 25th Reunion for those of our class who have not been to the Institute for years to see all the changes that have been made, and to point them out to their families. . . . **John Booton, Jr.**, has been appointed manufacturing manager of the Hudson Pulp and Paper Company, Cup and Container Division, 10 Minue Street, Carteret, N. J. . . . **Walt Wojtczak** has been elected president of the Hartford General Contractors Association. . . . **Reland Westgate** is plant manager for Ga-Pa Corporation of Savannah, Ga., which manufactures decorative, prefinished, hardwood plywood. He recently visited the Industrial Fair at Hanover, Germany. . . . **Virg Vaughan** is in charge of engineering planning for data services for A. T. & T.—**Robert H. Thorson**, Secretary, 506 Riverside Avenue, Medford, Mass.; Professor **Curtiss Powell**, Assistant Secretary, Room 5-323, M.I.T., Cambridge, Mass.; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morristown, N.J.

'38

This month we have but a single item. It tells of a commemoration sponsored by the Ford Foundation at Strafford, Vt., in

honor of Justin S. Morrill, who was instrumental in establishing the Land Grant College Act in 1862. One who attended the meeting was **Kow Kwong Choong**, dean of the College of Engineering at the National Taiwan University of Taipei. Following his visit to Strafford he went on to lecture in mechanical engineering at Michigan State University.—**David E. Acker**, Arthur D. Little, Inc., 1424 Fourth Street, Santa Monica, Calif.

'39

First, some news picked up at Alumni Day: **James H. Laubach, XV**, with Marjorie (Pat) came down from Brattleboro, Vt. Jim was formerly plant manager at Estey Organ Company, and in February launched his own business as "Brattleboro Business Services," engaged in providing management consulting services for local enterprises. Jim says that the boom in ski area and related ventures has produced a real need for his talents. . . . **Manning C. Morrill, X**, Vice-president, Operations, for the Cryovac Division of the W. R. Grace Company, and Connie live at 69 Wedgemore Avenue, Winchester, Mass. They have three girls: 14, 13, and 11, and one boy: 10. The three possess musical talents: piano, violin, and flute. And Manny says his son is a good fisherman! . . . **Siegbert J. Oettinger, X**, 41 Lodi Road, Marlboro, Mass., is a manufacturer's representative, principally for Artisan Metals, selling special machinery to the paper industry. Sig and Marcia's crew consists of Priscilla, 12, Gail, 10, and Kim, 2. . . . Expanding on a note in one of last season's columns, **George R. Blake, VI-A**, wrote from 44 Scarlett Street, West Boylston, Mass., that he is enjoying his current venture into town government; he is serving as school committeeman. The news clipping that George sent announced that he had received the biggest vote on the entire ballot. "My belief has been that engineers should seek recognition by their actions rather than by legislation. This has led me to take part in community affairs over the years, starting with membership on the town By-Laws Committee, then to school activities. . . ."

Robert G. Marchisio, VI-B, formerly general manager of Hermes Electronics Company, is now director of Special Equipments Division of Itek Laboratories, part of Itek Corporation. Bob, who had a 10-year hitch with C.B.S. Electronics prior to going with Hermes, won the Naval Ordnance Development Service Award for his work in the proximity fuse program. . . . Here's a note concerning unusual extra-curricular activities: **Thacher H. Fisk, IX-B**, General Counsel of the Kendall Company, Boston, has been elected president of the United States Trademark Association. But light is shed on the news release source by the following: Thacher is a member of the American Bar Association, American Patent Law Association, International Patent and Trademark Association, Boston Bar Association, and the Boston Patent Law Association. . . . **Dr. Ernest O. Ohsol**, Grad, X, Vice-president

of Haveg Industries, Inc., has also been named a vice-president of Haveg Corporation and has assumed the responsibility for all Wilmington operations of the company. Ernie now has charge of the Chemical Materials and Sil-Temp Divisions of Haveg Industries, plus his new assignment handling the manufacture of chemical equipment and fiberglass reinforced products.—**Oswald Stewart**, Secretary, 31 Birch Road, Darien, Conn.

'40

Wylie Kirkpatrick has left the Cryovac Division of W. R. Grace and Company, and is now with the Ward Baking Company in New York. . . . **Dave Parker** was one of the participants in the 40th session of the Advanced Management Program held at the Harvard Business School. Dave is a colonel in the U. S. Army and is director of research and development for the Transportation Corps. . . . **Bill Donovan** has joined with Jacob Koton to form the consulting engineering firm of Koton and Donovan located at Crossroads Plaza, West Hartford, Conn. Bill's firm will specialize in mechanical and electrical engineering in the air conditioning, refrigeration, heating, plumbing and electrical fields. Previously Bill served as electrical director of Bush Manufacturing Company, and more recently he headed Donovan Associates, a manufacturers' representative organization specializing in refrigeration and air conditioning products. He is a member of the American Society of Heating, Refrigerating and Air Conditioning Engineers.

Sam Goldblith has the job wanted by uncounted millions of children throughout the country. He is in charge of a program at Tech sponsored by the Sugar Research Foundation to find better tasting candies. Sam has also been appointed by the Surgeon General of the Public Health Service, Department of Health, Education and Welfare, to a special committee to develop long-range objectives for the environmental health programs of the Public Health Service. . . . **Bill Bulkley** spoke before the American Institute of Chemical Engineers at a meeting this fall on the subject of how ammonia burns and explodes. As a result of his studies on this problem, the dangers from the industrial use of this basic chemical will be substantially reduced.

Frank Shackelford, Jr., has been appointed manager of the Chicago District Sales office of DuPont. Frank has been with DuPont since 1939, first as an analytical chemist in the organic chemicals department and subsequently serving in supervisory positions in dyestuff intermediates production. He did sales work in Freon products and rubber chemicals and became chemicals sales manager of the Dyes and Chemicals Division in 1954. He then went to Mexico as an administrative officer of two DuPont operating firms in that country and in 1960 became Assistant District Manager in the Chicago District office. . . . **Marsh Bearce** has been promoted to chief product engineer at Split Ball Bearing, a division of Minia-

ture Precision Bearings, Inc. . . . To each and every classmate, Merry Christmas, and at the top of your New Year's resolutions place "Write to Al at least once in the coming year!"—**Alvin Gutttag**, Secretary, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; **Samuel A. Goldblith**, Assistant Secretary, M.I.T., Cambridge, Mass.

'41

Bob Blake has just sent in a more complete report on the Ahrendt family tragedy, which is being included here to augment last month's meager news report: **William R. Ahrendt**, his wife Matilda (Rusty) Clarke Ahrendt and three of their four children, were killed in a crash of the Ahrendt's private plane in the Andes Mountains in Peru on Friday, September 1. Bill had been in Peru since February as a visiting professor at the National University of Engineering in Lima, Peru. Reports from Peruvian authorities and State Department reports to the next of kin indicated that an engine failure of their twin engine Cessna 310 caused the crash in an area of 12,000-foot mountains. One fragmentary report states that the crash was witnessed by people on a bus on a mountain road and these observers indicated that death must have been instantaneous.

Mrs. Ahrendt had joined her husband in Lima in June, bringing along the three younger children after their summer vacation had begun. They had planned to return to their College Park, Md., home in December. The only surviving member of the family is a son Richard, 14, who is attending school in Baltimore.

Bill Ahrendt's career as a college instructor was the latest in a series of professional and business careers which had made him a wealthy man before the age of 40. Active in civic affairs, Bill had also served on the Board of Directors of the National Capital Area Health and Welfare Council, worked in the Unit Givers Fund and was a member of the College Park Rotary Club. His wife was active in the Family Service League, the Women's Rotary Auxiliary, and she was a member of the Washington, D.C. Section of the

A memorial service was held on Friday, September 8 at the Memorial Chapel of the University of Maryland, College Wellesley Club.

Park, Md. Service was conducted by the Reverend William E. Smith who was minister of the Washington Methodist Church where the Ahrendt family attended. In attendance were business and professional associates and friends of the family. Among those present were representatives of the Rotary Club of College Park, the Health and Welfare Council of Prince Georges County, and the Young Presidents Organization as well as members of the faculty of the University of Maryland. Men of M.I.T. Class of '41 who attended were: **John and Janet Murdock**, **George and Louise White**, **Paul Sanderson** and **Bob and Lindsley Blake**. The bodies were interred in Lima, Peru in the British-American Cemetery on the

morning of the same day that the memorial service was held in College Park, Md.

Joseph E. Dietzgen, now president of the Eugene Dietzgen Company, Chicago, Ill., will be one of the featured speakers at the Visual Communications Congress which will take place at the Biltmore Hotel in Los Angeles on December 2-5, 1961. The Visual Communications Congress is being co-sponsored by the Society of Reproduction Engineers, American Institute for Design and Drafting, American Records Management Association, and the Graphic Reproductions-Visual Communications Congress, 18465 James Couzens Highway, Detroit 35, Mich. . . . **Donald C. McDonald**, engineering vice-president of Sola Electric Company, Elk Grove Village, Ill., received the 1961 Award of Merit at the 17th Annual National Electronics Conference and Exhibition held at Chicago's International Amphitheatre on October 9 to 11. The NEC Award of Merit is presented from time to time to authors of outstanding technical papers in the field of electronics. Don was selected for this award because of his outstanding contribution to electronics by his technical paper "Non-Linear Techniques for Improving Servo Performance." The teachings of this paper were described by the NEC as "a departure from conventional theory which opened the field of time-optimal control" and a "landmark in the development of automatic control in the country." His paper stated the first practical solution to the design of servomechanisms utilizing non-linear components. His techniques now are widely used in designing controls for guided missiles, maintaining constant speed on strip rolling mills, positioning anti-aircraft guns, and in a variety of electrical and electronic applications. Don received his B.S. in electrical engineering in 1941 and his M.S. in 1942, both from M.I.T. His activities in professional and educational organizations include membership in Sigma Xi, Armed Forces Communications and Electronics Association and the M.I.T. Club of Chicago. He has authored more than 13 articles on servomechanisms and instrumentation. A native of Norwood, Ohio, Don now lives in Park Ridge, Ill., with his wife and two children.

J. Cranston Gray has joined, as of October 1, Berkshire Hathaway, Inc., where he has been placed in charge of all manufacturing with responsibility for the operation of the firm's seven plants. Cranston is a graduate of the M.I.T. School of Industrial Management. He is married to the former Nell Gray Johnston of Decatur, Ala., and has two sons, J. Cranston, Jr., 12, and David B., 9. The Gray family will reside at 16 Middle Street, South Dartmouth. . . . **William K. Hooper** has just been elected to the board of directors of Republic Foil, Inc. of Danbury, Conn., where he holds the position of vice-president. . . . **Everett R. Ackerson** has been promoted from the position of chief engineer to general manager of the Deacy Products Company of Cambridge, Mass.

Charles W. Sauer was feted at a dinner meeting of the Metropolitan Boston members of the Class of '41 on September 27,

upon his return from Hawaii and San Francisco where he was married to Miss Mary-Louise Read of Weston, Mass., on September 9. The couple will live at 100 Memorial Drive, Cambridge. The group was also pleased to have Bill Hooper present at the meeting as an out-of-town guest. It was voted to hold a regional Class of '41 meeting for metropolitan Boston members and others who wish to attend, in the spring of 1962. **John H. MacLeod, Jr.** was elected chairman of the spring meeting. **Ed Marden** presided at the business part of the dinner meeting. Those present were: Bud Ackerson, Ed Beaupre, Bill Hooper, Dave Howard, Walt Kreske, John MacLeod, Mitch Marcus, Ed Marden, Charles Sauer, John Sexton, Irv Stein, and Reid Weedon. Please keep sending us information as to your activities, etc., for insertion in this column.—**Walter J. Kreske**, Secretary, 53 State Street, Boston; **Henry Avery**, Assistant Secretary, 169 Mohawk Drive, Pittsburgh 28, Pa.; **Everett Ackerson**, Assistant Secretary, 16 Vernon Street, South Braintree 85, Mass.

'42

Hail Fellow Greybeard. Now is the time for all readers to prepare for a gala 20th Reunion weekend—Friday, June 8, through Sunday, June 10, with a finale at Alumni Day, Monday, June 11, 1962. After marking the date on your office and home calendars the next chore is to send class dues, \$5, to Reunion Treasurer and Physician, Dr. **Martin B. Levene**, 469 Brookline Avenue, Newton Centre, Mass. All Class News readers will surely have received the announcement with its publicity for the Mayflower Hotel at Plymouth, Mass., and the sterling 17-man committee headed by **Alfred Goldis**. The committee titles, from cocktails to clam-bake, suggest a gala program with lots of time to reminisce and little to sleep. We hope to see you all there.

One of this column's steadiest and most interesting contributors is **Ken Rosett**. Herewith his latest letter: "It has been a long time, and I believe that my usual annual letters have now degenerated to bi-annual efforts. As we have in the last four or five summers, Jean, Nancy and Johnny took several business trips with me around the Midwest. As a matter of fact, we finally got to the end of my territory—Nebraska and Colorado. This is certainly beautiful country, and we took our usual large number of color slides which will be added to the collection of continental United States and European travels over the last number of years. Nancy is getting to be a young lady and is a freshman in high school. Johnny is in fifth grade. Time certainly flies by at a heck of a rate. Spent my Eighth Air Force 15-day annual tour in my usual assignment at the Pentagon last July. Got good and lucky and was promoted to full colonel on the July list. I guess all of our classmates are coming up to their 20-year mark, and I wonder just how many of us will end up on the retired list in the spring. The Armament Division, to which

I have been assigned ever since 1953, has been integrated into the Electronic Engineering Division. This would probably be a great place for a Course VI graduate, but for somebody with a chemical engineering background it is pretty hairy! Fortunately I am still in the armament end of the business and not in the electronic end so we can still make ends meet quite nicely.

"To get back to the summer trip, we drove up Pike's Peak which was certainly an interesting experience and came down in one of the heaviest hailstorms I have ever seen. Spent some time down at the Air Force Academy in Colorado Springs. We at Tech had better look to our laurels because this Air Force Academy outfit is building itself into a fine engineering school. Took a fast look in the chemistry and physics labs to see a gleaming array of stainless steel tables, benches, sinks and cabinets. It makes our old 801 and 501 laboratories look like something out of the Middle Ages! However, I guess there is a good chance that some modernization has been done in our labs since we left Cambridge. All of the Rosetts are well, fat and happy, and aging, out in the Middle West." Ken works in Chicago and they live in Park Forest.

Belmont G. Farley of the Lincoln Laboratory (part of M.I.T.) has been active in medical research. His paper, "Theory of Neural Function and Organization," was presented and discussed at the Fourth International Conference on Medical Electronics in New York. . . . Prolific automobile engineer and inventor **Lothrop M. Forbush** has received a patent for a new power actuator for hydraulic brakes. Lothrop is in charge of the Vehicle Development Group at General Motors. . . . Colonel **Richard C. Gibson**, head of the Department of Astronautics at the Air Force Academy, was one of the featured lecturers at the University of Connecticut's Fourth Institute on Missile Technology. Storrs, Conn., is a delightful place to take intensive summer courses, and its selection rivals that of M.I.T. Yes, bring your golf clubs. . . . A delightful article in "Printers Ink" magazine describes **Alan W. Katzenstein** as "a semantic bridge between clients' scientific personnel and advertising agency creative staff." Al is staff technical research man for Lennen and Newell, a \$100,000,000 advertising agency. His colleagues describe him as "the guy who deciphers the scientific terms and helps keep the FTC out of our hair." The well illustrated article reports on Al's discussions with Mazola margarine, Cities Service gasoline and Niagara starch. On the family side, Joy Cecile arrived to join an older brother and sister. The Katzensteins are Larchmont, N.Y., residents.

I continue to see **Robert H. Rines'** name as attorney on new patents and at the same time receive more and more newspaper clippings about his musical show productions. "Nothing But A Dream" played four nights in Belmont, Mass., to SRO. Last summer it was cast professionally for regular out-of-town trials. Bob and Dottie combined a vacation trip to Hawaii with supervision of the early road rehearsals. The New York pro-

ducers are reportedly watching the show's progress to determine whether to stage it on Broadway. We all have a date with Bob and Dottie next June—he is running the banquet program. . . . **William H. Haggard**, of the Weather Bureau headquarters in Washington, presented a paper, "North Atlantic Tropical Cyclone Activity," at the Second Technical Conference on Hurricanes in Miami, last June. **Harry F. Eawkins, Jr.** was chairman of the Program Committee and **R. Cecil Gentry** served with him. My impression is that if you look into meteorological research in this country you will stumble over Tech men, mostly of about our vintage. . . . Dr. **Robert G. Seamans, Jr.**, in his capacity of associate director of NASA, was invited to address the convocation of high school mathematics and science teachers at Wentworth Institute in Boston. His timetable for peaceful space spectaculars is as follows: 1965, a three-man earth orbiting lab with two weeks' residence per trip; 1967, moon circling similar manned lab; 1969 or 1970 manned exploration of the surface of the moon. Bob is the recipient of the Lawrence Sperry Award of the IAS given "for a notable contribution made by a young man to the advancement of aeronautics." In addition to his other duties he is a member of the Board of Trustees of Wentworth Institute, Boston's largest and best technical high and special training school.

The Alumni Register reports Lieutenant Colonel **Richard S. Malone, M.D.**, at Gunter AFB, Ala., and Captain **Harry C. Maynard**, USN, at the Naval Torpedo Station in Keyport, Wash. Long distance travelers include Dr. **Alan B. MacNee** from the University of Michigan to Gothenburg, Sweden; **George M. Watters, Jr.** from Bangkok, Thailand to Sydney, Australia; Professor **Forbes S. Robertson** back from Bahia, Brazil to Principia College in Elsah, Ill.; and that inveterate, hardy, transcontinental mover **Wilfred H. Shaw**. His latest for United Aircraft is from Avon, Conn., to Sherman Oaks, Calif. This is at least his fifth such move! New residences with a change of state have been posted for **David G. Donovan**, Peekskill, N.Y.; **Vincent T. Elkind**, North Kingston, R.I.; **Theodore W. Gibson, Jr.**, Ann Arbor, Mich.; **William M. Hendrich**, Denver, Colo.; Dr. **Robert T. Olsen**, Odenton, Md.; Major **Roger H. Olson**, Trenton, Ill.; **William J. Ozeroff**, Orinda, Calif.; **Robert W. Rutan**, Anaheim, Calif.; **Donald Stein**, Glen Burnie, Md.; **John R. Taylor**, New Orleans, La.; **Joseph L. Utter**, Mill Valley, Calif.; **William R. Wilcox**, Wilmington, Del.; and **Robert Wilson, Jr.**, Deerfield, Ill. . . . Remember Reunion, June 8-10. Your secretaries around the country—**J. J. Quinn**, Ed Edmunds and **Bob Keating**; and **Lou Rosenblum**, T.I.C., 430 Park Avenue, New York 22, N.Y.

2-'44

About the time that these lines will be read, St. Nick will be visiting the younger set. Your secretary adds his wishes to all

the many happy tidings of the season. Although I have managed to run into a number of the fellows in the last few months, notes on Christmas cards from you fellows would be a fine Christmas present to your secretary and the rest of the class as a whole! . . . As noted last month, **Bob Faurot, XV**, promised to drop me a line on classmates' activities around Chicago. He had talked recently with **Norman Callner, X**, who is with Liquid Carbonic in the engineering end. . . . **Arthur Komarek, XVI**, is vice-president of Ammco Tools and Liquid Controls, which is a company just outside of Chicago on the North Shore. Possibly Art could drop me a note and let us in on the products. . . . **Jim Picardi, I**, is chief structural engineer for Skidmore, Owings and Merrill, one of Chicago's leading architectural firms. Bob reports that Al is also active on the Educational Council. . . . **Jim Woodburn, III**, is director of research at the Griffin Wheel Company. Bob has seen Jim at some of the M.I.T. Club of Chicago meetings. Thanks Bob for the news from Chicago.

A note from **Bob Peck, XV**, who has been running around setting up "clean rooms," indicates that he ran into **Justin Margolskee, II**, at Raytheon Bedford Laboratory where he is in charge of the laboratory. . . . **Jim Mulholland, IX-B**, who is president of Hayden Publishing Company in New York, dropped me a line in which he indicates interest in helping to put 2-'44 and 10-'44 together into one class. He had recently talked with **Joe Davidoff, XIII**, on the subject, and Joe was all for the idea. Joe, at latest report, was art director for Campbell-Mithun in Chicago.

A recent note in the Huntingdon, Pa., Daily News indicates that **John R. Wald, Jr., IX-B**, has been appointed to the Educational Council of the area. John is executive vice-president of Wald Industries, Inc. . . . A note in the Lowell, Mass., Sunday Sun indicates that **R. Stanley La Vallee, XVI**, has been appointed senior staff analyst in operations research of Technical Operations, Inc. Stan went on after Tech and received a master's degree from the University of California in 1955. . . . Last spring I was down in New York, and ran into a number of '44 men with some reports on recent contacts. **Gene Schnell, XV**, is a partner in H. Schnell and Company, importing specialty foodstuffs in New York City. Mangoes and dates are some of Gene's specialties. He had recently run into **Reg Robba, XIII**, who is with Booz Allen and Hamilton, also in New York City. . . . **Ed Roos, X**, is a vice-president of Williams and Company, specializing in renting floorspace in all the many new buildings that are going up in New York. Ed advised that there has been more floorspace put in place in New York since 1946 than there is in the whole city of Chicago. I can believe it from looking at the many new buildings that are going up!

Tom Carmody, X, reported that **Norm Beecher, X**, is with National Research in Cambridge. Tom had recently seen **Joe Kaufman, II**, who is presently engaged as a floor broker on the American Stock Ex-

change. Possibly Joe could give us all lessons on where to put our money. . . . **Fred Cavanaugh, X**, is vice-president of Wyeth and Company, International Division, and calls Philadelphia home base. . . . The last report that Tom had was on the move of **Dick Soderberg, XVI**, from Connecticut to Houston, Texas, where he is with Schlumberger, Ltd., looking into new products. That's all for this month. Merry Christmas.—**Paul M. Heilman**, Secretary, Reflectone Electronics, West Main Street, Stamford, Conn.

'46

Through the summer months the newspaper clippings and corporate press releases have piled up, so with your indulgence we'll devote this month's column to these. Those who have been kind enough to send in questionnaires and personal letters and are patiently waiting to hear if they were received, please continue to be patient. We thank you for them, we need many more of them, and we'll be reporting them in the next few issues. Standard-Thomson Corporation of Waltham, Mass., announces that **Don Hurter**, formerly with Texas Instruments, Inc., has been appointed assistant to the president of Standard-Thomson. After M.I.T. Don took his M.S. in M.E. at Yale University. He served several companies in engineering and marketing capacities and then with Texas Instruments he was manager of industrial nuclear products and was responsible for the establishment of quality control, ultrasonic and eddy current testing, and the engineering of several nuclear projects. Don's initial efforts will be devoted to the development, engineering and marketing of Standard-Thomson products in the aircraft division. . . . The New Frontier is apparently not above going downriver a mile or so for talent. **Roger Sonnabend**, who is president of the Hotel and Motor Hotel Division, Hotel Corporation of America, as well as president of the Young Presidents' Organization, has been appointed to the six-member National Export Expansion Committee of the U.S. Department of Commerce by U.S. Secretary of Commerce Luther H. Hodges. . . . **John A. Knauss** is making quite a name for himself in the field of oceanography. After M.I.T. he earned his master's at Michigan and in 1959 his Ph.D. at the University of California. Until recently he has been at the Scripps Institution of Oceanography, the University of California. This past fall he headed a three-month expedition studying the mysteries of the Cromwell current off the Galapagos Islands, near Ecuador. In February he will assume the position of dean of the Graduate School of Oceanography at the University of Rhode Island and also will become director of the Narragansett Marine Laboratory. John recently completed a job as head of a subcommittee of the International Indian Ocean Expedition, charged with drawing up a report of that ocean's physical and chemical complexion.

Carroll J. Brown has recently been ap-

pointed executive development adviser for the Socony Mobil Oil Company. After receiving his master's degree in industrial management from the Institute, he joined the teaching staff and became an assistant professor. In 1955 he joined Standard-Vacuum Oil Company as an organization consultant. Carroll and his family live at Dawn Harbor Lane, Riverside, Conn.

William S. Coleman, Jr., until recently the senior liaison engineer of the General Motors Research Laboratories, has been appointed chief administrative engineer at Motec Industries, Inc., Hopkins, Minn. Bill earned his B.S. at Michigan State and his M.S. in mechanical engineering at M.I.T.

Stuart Edgerly, who until recently has been general sales manager of Fenwal, Inc., Ashland, Mass., has just been elected vice-president in charge of sales of that company. . . . **William Siebert** spoke on "Thresholds and Detection Theory" at the 4th International Conference on Medical Electronics combined with the 14th Annual Conference on Electrical Techniques in Medicine and Biology in New York City last July. . . . **Walter A. Backofen**, Associate Professor of Metallurgy, M.I.T., was co-author of the article "Effect of Grain Size on Brittle Fracture in Steel" which was recently published in "Transactions," the journal of the Metallurgical Society of the A.I.M.E. . . . **Jerome E. Fischler** was the author of an article entitled "Modes of Failure of a Hypersonic Re-entry Glide Vehicle," published in the September issue of "Aerospace Engineering." Jerome is with the Douglas Aircraft Company. . . . Your reporter had an article entitled "Step Input Checks Rate Gyro Damping" published in the August issue of "Control Engineering." That's all for now. Happy New Year.—**John A. Maynard**, Secretary, 15 Cabot Street, Winchester, Mass.

'49

Here is the second biography in our series. This one deals with **Ed Kerwin** (Course VI-A) who prepared it himself in the form of a letter to **Wally Row**, at Wally's request. "Dear Wally: After musing for some time over your request for information on my life, I find myself still puzzled as to exactly what form the write-up should take. Accordingly, I am sending along some notes in this letter for your comments. I was born on 20 April, 1927 in Oak Park, Ill., the fourth of eight children. In June of 1944 I was graduated from Fenwick High School in Oak Park, and proceeded immediately to M.I.T. There I signed up for electrical engineering, which I learned to call Course VI. Because of the pressure of current events, I left M.I.T. to serve with the Navy in their Radio Technician Program and was missing from the Institute from July, 1945 to September, 1946. (This, incidentally, turned out to be a most useful technical encounter for me.)

"On my return to M.I.T. in the fall of 1946, I joined the Co-op course, VI-A. My four work assignments, starting in the

spring of 1947, were with the Philco Corporation in Philadelphia. They included the following: Automotive Radio Laboratory, Vacuum-Tube Plant Laboratory (transistors were unheard of then!), Research Division—work on a radar control system—and Research Division—project on electrostatic loudspeakers; this last was also my thesis project for the S.M. degree. The summer of 1949 was a combination vacation and travel period. In the fall I returned to Tech to finish my last two terms of courses in the co-op course. During that year I was fortunate enough to have been chosen an M.I.T. Swope Fellow. My thesis supervisor, Professor Leo L. Beranek, encouraged me to go on to further work in acoustics, "an up-and-coming field." I resisted at first, having, as many of us did in those days, visions of sallying forth to some business school or other (name two), receiving my vice-president's degree, and marching out to conquer industry. The Good Professor prevailed, however, and in December 1949 I rearranged my whole program and proceeded ahead in acoustics. There were some growing pains in math and physics, but the prospects for the future looked most encouraging. I picked up my S.B. and S.M. degrees in June of 1950 and spent the summer on a student exchange job at the N. V. Philips Gloeilampenfabrieken, Eindhoven, Netherlands.

"Returning to Tech in the fall of 1950, I spent one year in full-time course work and was then appointed a research assistant at the Acoustics Laboratory. I worked variously on audio-visual memory span, miscellaneous electronics projects, some flow-noise studies, and then my thesis problem: "A Study of the Rijke Phenomenon" (that's thesis-ese for heat-driven acoustic oscillations). My Sc.D. work was completed in February, 1954, and I left M.I.T. to go to work with Bolt, Beranek and Newman, Inc. (BBN), "consultants in acoustics." I had been working with them part time since the fall of 1950. (Ira Dyer has been with BBN since 1951 and is now a vice-president.) On a hot day in June, 1954, I journeyed to the other side of Cambridge to pick up the parchment document. Incidentally, this particular document was written entirely in English, a fact which may be an indication of leadership in things cultural in our community.

"As regards family news, I married Peg (Margaret Ann) O'Grady of Watertown, Mass., on 13 June, 1953. I should note here her considerable contributions toward our doctorate—editorial help, reading miscellaneous mysterious meters (sometimes we were both mystified), standing the all-night watch on a balky computer, and above all general encouragement. In March, 1955, we moved to our present house at 3 Legion Road, Weston, Mass. We have added tenants as follows: Dennis (1955), Mike (1956), Claire (1958), and John (1959). An addition was put on the house in 1958.

My work at BBN has been completely satisfactory. I don't think I could have learned so much so fast anywhere else. There has been considerable travel, and thus the opportunity to call or visit numerous former classmates. My efforts

have been in the following areas: industrial noise control, engine test cells, aircraft noise control (considerable effort here), vibration damping mechanisms (major concern for the past three to four years), noise problems for the Navy, and miscellaneous smaller projects and consulting efforts. A number of technical papers have come out of this work and have been presented at the meetings of the Acoustical Society of America from 1954 through 1961 (some of these were prepared with co-authors). I presented two papers at the Third International Congress on Acoustics, Stuttgart, Germany, September, 1959, and have made presentations at several government sponsored symposia in this country. By the way, a recent note in the Alumni News accused me of presenting the same paper three times in 1959. That was three different papers! So far I have not been active in Alumni affairs, but thoroughly enjoyed getting together with others of our class, notably at the 10th Reunion and at the time of the M.I.T. Centennial—Ed Kerwin."

George Motzenbecker (Course XV) has joined Welding Gas and Equipment Company as sales manager, according to the Detroit Free Press. He was previously with the Linde Company in sales for twelve years, six in the Detroit area. . . . **Charles Kroll** (M.S. and Sc.D., Course X), head of the technical data department of E. R. Squibb and Sons, is chairman-elect for 1961-62 of the New Jersey Section of American Institute of Chemical Engineers. . . . **Gordon Raisbeck** (Ph.D., Course XVIII), has joined us at Arthur D. Little, Inc. He is a mathematician and communications specialist who was a transmission line research engineer at the Bell Telephone Laboratories, specializing in the application of mathematics to communications, emphasizing wave propagation, modulation and information theory, and transistor circuitry. He is credited with numerous papers and over 15 patents in these fields. He has served as a member of ARPA Division and the Research and Engineering Support Division of the Institute for Defense Analyses. . . . **Charles Pike** (Course XV), is now vice-president, operations, of Merck, Sharp and Dohme, where he has been director of operations since joining the company in September, 1960. His major responsibilities include production, engineering, purchasing, and quality control functions for all biological and pharmaceutical operations. He was previously with Johnson & Johnson and the International Latex Corporation, Dover, Del.—**Frank T. Hulswit**, Secretary, 14 Nadine Road, Saxonville, Mass.

'50

Well, now, let's begin by welcoming you all back to work after a pleasant summer vacation. According to my crystal ball, this year looks like a great one for the Class of '50. I have a feeling that this is the year that we're all going to become rich and happy and even get ourselves "organized!"

First, get your address book out and make the following changes of address for the classmates with whom you may be familiar: **Guy C. Bell, Jr.** now at Crestview Drive, R-27, Springfield, Pa.; **Henry L. Duffett**, 2136 Coventry Drive, Holiday-Hill, Wilmington 3, Del.; Commander **Richard J. Dzikiowski**, 1705 Kingsway Road, Norfolk 3, Va.; **Rui J. P. DeFigueiredo**, Avenue of the United States of America #54, 30 DTO, Lisbon, Portugal.; **Gerard D. Galletly**, Advance Materials R and D Laboratory, Pratt and Whitney Aircraft, Plant "N", North Haven, Conn.; **Charles F. Grice**, 13114 Indian Creek, Houston 24, Texas.; **Ronald J. Rabalais**, 2066 South Prosser, Los Angeles 25, Calif.; **Frederick T. Rall, Jr.**, 504 Chee Court, Kederling, Ohio.; **Herbert Ridgway**, Averyville Road, St. Marys, Pa.; Dr. **James Thompson**, 20 Richmond Road, Belmont, Mass.; **Frank Weems**, Hidden Hill Road, Weston, Conn.; Dr. **Roy Weinstein**, 10 Daniels Street, Lexington, Mass.

Tom Christman left his post as executive officer to take up new duties as resident representative for the Bureau of Naval Weapons at Aerojet-General Corporation's Sacramento Solid Rocket Plant. As commander of the local Navy Office, he will administer assigned contracts and direct the quality control work, security, and technical liaison for research and development for all military and 110 civilian personnel. . . . **Milt Stern** has been appointed manager of research of the Speedway Indiana Research Laboratories; in his new position, Milt will be responsible for all research activities at the Speedway Laboratories. These activities include research in high temperature technology, with emphasis on arc and flame devices and related processes. . . . **Don Miller** has been elected a principal of Cresap, McCormick and Paget, of New York, Chicago and San Francisco. Don will continue to be associated with the firm's retail division, which provides specialized counsel and assistance to management of retailing and wholesaling organizations.

Sid Self will work as a systems and procedures analyst for Technical Operations, Inc. Sid lives with his wife and two children at 74 Hickory Road in Sudbury. . . . **Irv Williamson** has been appointed manager of Norton Company's Santa Clara, Calif., plant. Irv joined Norton in 1954 as an industrial engineer. He later served as an assistant foreman in the packing and shipping departments and as supervisor in the industrial engineering department. Since last September he has been superintendent at the Santa Clara plant. . . . **Lou Russell** has been promoted to senior engineer in Solid-State Memory Development at IBM's Poughkeepsie, N.Y., Development Laboratories. Lou is currently serving on a special assignment at IBM, Zurich, Switzerland. Lou and Mrs. Russell and their three children make their permanent home on Westview Terrace, Poughkeepsie, N.Y. . . . **Jay Bedrick** has been named manager of the electro mechanical research and development department of Minneapolis-Honeywells's Boston Division.

Henry K. Arnold is co-author of a British patent just granted; a U. S. patent is

pending on the invention. It covers a new method of introducing feed into the reaction vessels at the butyl plant at Humble Oil and Refining Company's Baytown refinery. Arnold is a senior chemical engineer in the mathematics and computing section, Central Technical Division, and directs his efforts to the utilization of electronics computing machines for improving the efficiency of the refinery's operations. He specializes in the application of modern mathematical methods to determining optimum use of raw materials and processing equipment to produce a wide variety of petroleum products. . . . Well, that's about it for now; I hope to hear from all of you soon. Best Wishes.—**Gabriel N. Stilian**, American Management Association, 1515 Broadway, New York 36, N.Y., JUDson 6-8100.

'51

Well, another Class of 1951 reunion has passed. To those attending it is no surprise to report now that the attendance was larger than any other M.I.T. reunion held previously, including even the notorious 25th reunions. The Chatham Bars Hotel supplied better weather than we had at our fifth, so preliminary arrangements have been made to hold the next reunion there. At the reunion the results of the class elections were announced. Our new class president is **Hank Spaulding** and our new secretary-treasurers are **Dick Willard** and **Forest Monkman**. All three are currently situated in the Boston area, which should contribute to the solution of communication problems between the officers and the Institute.

Dick Ahern was, at the last report dated June 23, spending by his description a delightful time in Afghanistan before passing on to Delhi. His tours of Asia have been recounted to us by mimeographed letters, for which we are grateful. . . . **Aaron Brody** served as chairman of the Food Refrigeration Symposium at the 68th Annual Meeting of the American Society of Heating, Refrigerating and Air-conditioning Engineers held last June. Aaron is product development manager for M & M Candies, Hackettstown, N.J. . . . **Kan Chen**, advisory engineer, Westinghouse Research Laboratories, has been chosen for the Westinghouse Academic Leave Program whereby he will do research in systems engineering at Stanford. He joined Westinghouse in 1954 and served in the Materials and the New Products Laboratories before his transfer to the Research Laboratories in 1960. . . . **Peter T. Demos** served as vice-chairman of one of the Gordon Research Conferences held last summer in New Hampshire. He shared responsibility for a five-day conference on Photon-Induced Nuclear Reactions last August. . . . **Alve Erickson**, Assistant Professor in Course II, presented a paper entitled "Theoretical Analysis of Convection Currents in Glass Tanks" at the 63rd Annual Meeting of the American Ceramic Society, Glass Division. . . . At the

Second Technical Conference on Hurricanes, held under the Joint Sponsorship of the American Meteorological Society, and the Greater Miami Branch of A.M.S. last June 27-30, the Class of '51 was represented by **Alan Fallor**, of the Woods Hole Oceanographic Institution, who discussed "An Experimental Analogy to and Proposed Explanations of Hurricane Spiral Bands." . . . **Kenneth Forsberg**, engineering section head for radar research in the Advanced Studies Engineering Department at Sperry Gyroscope, presented his paper "Advanced Radar Concepts" at a meeting of the Long Island Section of the IRE Professional Group on Military Electronics, March 14, 1961, in Mineola, N.Y. . . . **Peter Hajian** is an associate in the firm Hajian-Malkasian-Robert Charles Associates, recently chosen to design a housing project for the elderly in Cambridge. . . . **Theodore Jacobsohn**, assistant manager of Kidde Electronics Laboratories, Walter Kidde and Company, Inc., was co-author of "Hawk Hydraulic and Electromechanical Field Maintenance Equipment," which appeared in the June issue of "Aerospace England." Previously he was senior engineer at Avion Division, ACF Industries, and Product Engineer at Allen B. DuMont Laboratories, Inc. He specializes in the design and production of electronic equipment for missile and aircraft systems.

Margaret Irby Koenig and her family are in California while Dick attends Stanford's Graduate School of Business for the Army. . . . **Nathan Lieberman** has been appointed manager of project and design engineering for Monsanto Iberica S. A. at Barcelona, Spain, after serving as engineering supervisor for the company's Plastics Division engineering department at Springfield, Mass. . . . **Winston Markey**, director of the M.I.T. Experimental Astronomy Laboratory, was the subject of a feature story in a recent Boston newspaper. . . . **Paul Murray** has been appointed health agent for the town of Watertown, Mass. He had been an inspector with the Health Department for 12 years prior to his recent appointment. . . . **Dick Packard**, a project leader in the Device Engineering Department of the Clevite Transistor Company in Waltham, Mass., has participated in several marathons. He missed the BAA marathon in 1960 in order to work on his doctoral dissertation for which N.Y.U. awarded him a doctor of English science last June. . . . **Beatrice Paipert** appeared with the M.I.T. Players at Kresge Little Theater in August as Matalia in Chekov's "The Marriage Proposal," and in October as Signora Ignazia in "Tonight We Improvise" by Luigi Pirandello. . . . **John Ryan** and Sara Moncrief were married in Charleston, W. Va., last May. . . . **Charles Schramm** received his doctor of electrical engineering degree from Brooklyn Polytech last June at the same time **Zenon Popinski** received his master of mechanical engineering. . . . **Joseph Tamsky**, assistant director of the Hartford Redevelopment Agency, spoke to a Hartford County Women's Club convention last spring. . . . **Edward Webster** (Department of Radiology, Massachu-

setts General Hospital) spoke on "Limitations of Combined Television-Image Amplifier Systems for Medical Fluoroscopy" at the Fourth International Conference on Medical Electronics last July.

With deep regret we report the death of **Ken Rathbun**, a victim of leukemia. He had been teaching in the engineering school at Texas A&M.—**Richard W. Willard**, Secretary, Box 105, Littleton, Mass.; **Forest Monkman**, Assistant Secretary, 46 Lincoln, Hingham, Mass.

'52

It's getting to be that time of year again when the weather's getting cold, and December thoughts should turn to warm summer evenings on the shore, which brings us around with a little contriving to the first item of importance, the Class of 1952's 10th Reunion to be held Saturday and Sunday, June 9 and 10 at the Yachtsman Hotel in Hyannis, on Cape Cod, Mass. By the time you read this, my sources tell me that you will be receiving your reunion invitation with additional information. The 10th reunion of every class is generally the best attended and most lively and enjoyable, and Chairman **Sandy Isaacs** and the committee are working hard to make ours especially fun. Watch this column for further developments. Incidentally, to conserve class postage monies, your secretary is combining his annual questionnaire with a reunion mailing, so let's have some Class News. I'm still running on last year's news, and the barrel is getting empty.

Nick Melissas is off to Washington, D.C., with Thiokol, and yours truly was amongst those who saw him off at a "zombie" party at **Gus** and **Chloe Rath's** along with **Jim** and **Marcelle Davidson**; **Sandy** and **Nancy Isaacs**, who are comfortably settled in their new home in Weston; **Al** and **Fran Kandel**, down from Nashua where **Al** is with Sanders Associates; **Jim** and **Joan Stockard** (Joan's is the voice at the other end of the Tech Matrons Association telephone, nowadays); **Burge** and **Libby Jamieson** in from Framingham (Burge is with Adage in Cambridge); **Herb** and **Melissa Eisenberg**, who announced the birth of their fourth child, **Bethany**, in July (Herb has been working on an interesting problem for an underground bomb shelter for the Civil Defense Agency); **Stan** and **Jackie Buchin** (Stan is teaching Control at Harvard Business School); and many others.

Class President **Bob** and **Kathy Briber** announce the birth of **Katherine Miles Briber** in July. . . . And **Dick** and **Sally Baker** report their first born in September 1960, a boy, and also report skiing in Aspen for vacations. **Dick** is assistant sales manager of Bartelt Engineering Company in Rockford, Ill. . . . **Ralph Preiss** has been promoted to development engineer for the IBM Scientific Computation department at the Poughkeepsie Development Laboratories and is manager of an advanced design automation project. . . . **Hal Larson** is now captain and was recently graduated from the 101st Airborne Division Jump School at

Fort Campbell, Ky., and is wearing paratrooper wings. . . . **Bob Danforth** is with Lite Control Corporation in Watertown, Mass., as vice-president and general sales manager. . . . **Ed Schwarz**, '53, is with Merrill Lynch, etc., in Detroit, as is **Merrill Baumann** in Boston. . . . **Newton Shanbrom** is with Turner Construction Company in New York City as a construction estimating engineer. . . . And **Chang-Hyo Kem** is an applied mechanics section chief with Cleveland Pneumatic Industries, Inc., Systems Division, in Bethesda, Md. . . . **Dr. Felix Bronner** is an assistant professor and director of the Laboratory of Mineral Metabolism, the Hospital for Special Surgery, Cornell University, and has been editing a treatise on Mineral Metabolism (four volumes, first one out). Felix is a member of the American Physiological Society, and a fellow of the American Association for the Advancement of Science. . . . **Mike Nacey** is with General Radio Company in Concord as assistant personnel manager, and is a member of the Massachusetts Bar (1960), and a member of the M.I.T. Alumni Council. . . . **Leonard Schwartz** received his M.D. from Wayne State University College of Medicine in June, 1959, and is now a resident at Cedars of Lebanon Hospital in Los Angeles.

Recent papers by '52'ers include **Dr. Richard B. Southworth's** "Dynamical Evolution of the Perseids and Orionids" at the International Symposium on Astronomy and Physics of Meteors at the Smithsonian Astrophysical Observatory, Cambridge, last August; **Edward J. Duggan**, Group Leader, Polaris Guidance System Electronic Packaging, M.I.T. Instrumentation Laboratory panel member on High Density Electronic Connections, published by the Boston Section, Institute of Radio Engineers; and **Dr. Gustave J. Rath**, "Teaching Machines and the Corporate Image" at the Merrimack Valley Subsection, Institute of Radio Engineers. Gus, incidentally, published "Automatic Teaching: The State of the Art" in 1959, and "A New Task for the Technical Writer: Programming Teaching Machines" in 1961. And on the cheerful side, have just watched '52's **John T. Fitch** with the 11 o'clock News on WHDH, Channel 5, in color. John also writes a column for the Boston Traveler on jazz, and lives next door in Concord to **Wes Heywood**.

Recent weddings include: **Hugh A. Robinson** to Joan van Wezel in Cambridge last June; **Samuel W. Goodwin** of Rochester, N.Y., and Nancy Lee Clymer; and **Werner E. Sievers** and Patricia Towle in the M.I.T. Chapel. . . . **Dick Jenney** is a vice-president of Wolf Research and Development Corporation in Boston (computer applications for industrial and military projects). . . . And **Qazi B. Ahmed** was recently on a panel debate on school systems, American and foreign, held at Otis Air Force Base, Cape Cod. . . . **Leon Polinski** received his doctor of chemical engineering degree in June, 1961, from the Polytechnic Institute of Brooklyn. . . . And that seems to be about it for this month. Let's have a letter from some of you with your

recent news—promotions, moves, marriages, children, papers or presentations, articles, books, and bring us up to date.—**Dana M. Ferguson**, Secretary, 242 Great Road, Acton, Mass.

'53

The surging population of Bedford, Mass., received a big boost a few weeks ago when the **Gil Gardners** moved into town with their flock of five-plus children. (Let this serve as fair warning to any of you who want to win the 10th Year Reunion prize for the couple with the "Most Children.") Gil, as I may have mentioned earlier, has been transferred to Hanscom Field, nearby at Bedford, Mass. . . . **Michael Gruenbaum** and **Rocco Mancini** are both working for the Boston Redevelopment Authority as transportation engineers of one sort or another. . . . **Brian Parker** has been employed as a consultant to the Justice Department of the Commonwealth of Puerto Rico; he has been hired as a criminalistics expert to implement improvement in local scientific criminal investigation. . . . **Jules Van Deun**, '50, is returning to M.I.T. for graduate study after spending seven years with Ford Motor Company; he was one of three engineers of the Ford Motor Company to be selected for Alfred P. Sloan Fellowships which provide one year of study as part of M.I.T.'s Executive Development Program. . . . **Robert Donohue**, '53-G, earlier this year was appointed director of the Systems Research Laboratory of the Geophysics Corporation of America, whose office is in Bedford, Mass.; prior to this appointment, Bob was with the Advanced Research Projects Division of the Institute of Defense Analyses and was responsible for ARPA technical efforts in Early Interception of Ballistics Missiles and for general systems and operations analysis studies of the Ballistics Missiles Defense Branch.

Stan Lenard is now a captain in the Chemical Corps, U. S. Army, and just completed the Officer Career Course at the Chemical School, Fort McClellan, Ala. The nine-month course is designed to prepare the student to assume the increased command and staff responsibilities of a senior officer in the Chemical Corps. . . . As fate would have it, **John Roop** is also a captain in the Chemical Corps and attended the same course. . . . **Jack Flanagan**, '53-G, is doing post-doctoral work in orthodontics at the Harvard School of Dental Medicine and last year was the recipient of the Harvard Dental Alumni Gold Medal "for all around scholastic excellence." . . . Another classmate to receive a high award is **William Huggins**, '53-G, who was appointed Westinghouse Professor of Electrical Engineering at the Johns Hopkins University (the first named Chair in the School of Engineering at Johns Hopkins). William, who is noted for research in the fields of signal theory and electronics, has been a professor at Hopkins since 1954, and before that held significant posts with the Air Force Research Center here

in Cambridge; this latter work brought him a decoration for Exceptional Civilian Service, the highest Air Force Award which can be granted to a civilian. Also, in 1956 he was presented a special award by the National Electronics Conference for co-authoring the outstanding conference technical paper. . . . At the 193rd National Meeting of the American Meteorological Society held last June, **William Hildreth** delivered a paper on an "Investigation of Long Scale Length Atmospheric Anomalies" in the session on general meteorology.

I'm sorry but the clock has run out for this month. In the meantime, perhaps some of you will be good enough to drop me a line about your activities.—**Martin Wohl**, Secretary, Room 1-131, M.I.T., Cambridge, Mass.

'54

Probably because I have been doing considerable moving about during the last few months, class news has been slow reaching me. Most of the items this month are rather old, but since they haven't been reported yet, we shall pass them along. Word has arrived that **Bob Hobart** has moved up to Halifax, Nova Scotia, where he is attached to the Physics Department of Dalhousie University. . . . **Scott Mudgett**, who is stationed at Fort McClellan, Ala., was recently promoted to captain. . . . **Bob Van Meter** is now teaching history as an instructor at the University of Wisconsin, Marinette Extension Center and at the university's Green Bay Center. Bob is living in Green Bay, Wis. . . . **Gordon Smith** has been promoted to chief engineer of the monitor and control division of Fenwal, Inc., Boston. Gordon is living in Ashland, Mass. . . . **Yohay Ben Nun** visited the United States last spring as the representative of the government of Israel in the 1961 Israel Bond Drive Campaign. Yohay holds the rank of alouf (rear admiral), the highest rank in the Israel navy, and serves as chief of naval operations for Israel. He has received his country's highest award for valor, the "Hero of Israel" medal, given to him for his "outstanding leadership and personal courage when he attacked a concentration of Egyptian capital warships with two salvaged torpedo boats and sank the Egyptian flagship."

A letter from **Ron McKay** informed us that he has deserted New England and returned to his native land, Chicago. He still toils for the firm of Bolt, Beranek and Newman, Inc., and is currently helping get their new Chicago office going. He, Sally, and the two young McKays, Ken and Andy, are living in Hinsdale, Ill., and are looking for other members of the class in the Chicago area.

Here in St. Louis, Marcia and I are finally getting settled after leaving Uncle Sam's employment, finding a place to live, getting my classes started at St. Louis University, and welcoming our number two child, Mary Marcia. Classes at the university started September 18, Mary was born September 21, and we

moved to our new address (note below) September 28. We had a few interesting weeks there, but things are nice and calm now. Drop me a card and let us all know about your latest successes. And have a Merry Christmas and a Happy New Year!—**Edwin G. Eigel, Jr.**, Secretary, 6932 Chippewa Street, St. Louis 9, Mo.

'56

While it would not be very interesting to list those who attended the reunion, I shall try to work many of them and their information into the next few articles. . . . Word has recently been received from the widow of **Jose Tabush** that he died in Guatemala in April. Jose had also received his M.S. from Tech. . . . In the nuptial column **Warren Briggs** and **Renata Hofman** were wed in the M.I.T. Chapel in September. Renata taught German at both M.I.T. and Wellesley. . . . **Ernest Carlson** wed Marion Webster earlier this year. **Frederick Worsh** wed Elizabeth Bailey of Brookline in April.

In the field of advanced degrees, **Fredric Gordon** received his M.S. from Brooklyn Polytech in June. . . . **Charles Kusik** received his Sc.D. from N.Y.U. in June. Charlie has also studied at the French Petroleum Institute and received his engineering degree from Tech in 1958. . . . **John Orehotsky** received his M.S. from Brooklyn Polytech in June, as did **Moorfield Storey**. . . . **Herb Katz** received his LL.B. from Columbia in 1959 and has been admitted to the New York Bar and the Florida Bar. . . . **Harvey Levine** has received his M.S. from Newark College of Engineering. . . . **John Ross** was a process engineer with Columbian Carbon but is now a student at the University of Pennsylvania. John was married in 1960.

Now some words from those in the paid-for-working category; **Michael Damone** is assistant manager of the Site Planning Department of Cabot, Cabot and Forbes in Boston. Mike and Marie have one child, a boy. . . . In a recent letter, **Al (Alonso) Engel** relates that he is administrative assistant to the manager of C. A. Energia Electrica de Venezuela. Al was formerly with the power company in northern Mexico and enjoys living south of the border. . . . **Ward Halverson** is co-author of a paper entitled "Exhaust Requirement for Electrically Powered Rockets." Ward is a research engineer in the Advanced Propulsion Devices Section of the Allison Division of General Motors. Ward has specialized in space technology since Tech. . . . **Richard Kane** is now a professor in the Physics Department of Texas A & M. . . . **Dimitri Manthos** is a vice-president of A. D. Manthos Ship Operating Company in New York. He was married in 1960. . . . **Gene Mathot** is an actuary with Guardian Life Insurance. . . . **Judith Gorenstein Ronat** interned at St. Elizabeth's Hospital in Brighton last year and is now in residency in psychiatry at McLean Hospital in Belmont. . . . **Nelo Sekler Nussenbaum** writes that he is man-

ager of marketing industrial chemicals for Shell de Venezuela and teaches part time at the University of Central Venezuela. He hopes to return to the Boston area for more studies next year. . . . **Ellen Dirba Harland** is living in a new self-designed home in Aspen, Colo. Ellen also has a new baby to brighten the household. . . . Must leave now; John Harvard (if you will pardon the expression) is shouting in my ear.—**Bruce B. Bredehoff**, Secretary, 1094 Center Street, Newton Centre 59, Mass.

'57

Tom Keegan presented a paper entitled "Observed Variations of Winds and Circulation in the Mesosphere" at the National Meeting of the American Meteorological Society. . . . **Bill Hershyn** has joined General Electric as a microwave engineer. . . . **Alan Kotliar** is assistant to the president of Basic Products Corporation, Milwaukee. . . . **Carl Anderson** received a Fulbright Award to study nuclear engineering at the University of Oslo, Norway. . . . **Charles Bates** has been appointed to M.I.T.'s Educational Council. Charley is a development engineer with Procter and Gamble in Cincinnati. . . . **Phil Shakir** has joined the faculty of Worcester Polytechnic Institute. . . . **Ira Zames** is at the Harvard Business School. . . . **Jim Levins** has been promoted to general foreman at General Motors New Departure Division in Bristol, Conn. . . . **Dr. Stan Cortell** wed the former Sharon Naron in the M.I.T. chapel last May. Sharon is an alumna of Boston University. . . . **Stuart Keeler** married Francis Bradshaw last May. Francis is also a graduate of Boston University. . . . Lieutenant **Kermit Meade** is skipper of the Coast Guard cutter "Legare." . . . **Bill Kyros** received his real estate brokers license this summer. Bill is practicing in Lowell and Groton. . . . Postmaster General J. Edward Day appointed **Ed Harriman** director of the Post Office Department's Office of Research and Development. Ed's department is responsible for the designing of new postal department buildings and for the development of faster and more economical methods of handling mail. . . . **Joe Roseman** received an M.S. in applied mathematics at Polytechnic Institute of Brooklyn last June. . . . **Jim Keith** went to Varenna, Italy, recently to present the physics research work he has been doing on gravitational theories at the University of Detroit. . . . **Ed O'Brien** received a National Science Foundation award.—**Alan M. May**, Secretary, 201 East 66 Street, New York 21, N.Y.; **Martin R. Forsberg**, Assistant Secretary, 11 Scottsfield Road, Allston 34, Mass.

'58

Now that everyone is well satiated with turkey et al., we can begin to contemplate the joys and libations connected

with the holiday season. Any new resolutions this year? . . . Any of you who read "Business Week" probably noticed the article in the September 9 issue, New Products section, about **Arnold Amstutz's** new company, Scientific Development Corporation, and its product, the MINIVAC 601. MINIVAC is a small scale computer simulator which helps business executives to understand computer functions. MINIVAC is a commercial outgrowth of work by Professor Claude Shannon, '40, in information theory and teaching machines. MINIVAC certainly is an inexpensive way for some of our bosses to learn a little more about computers. Arnie, president of SDC, is one of the first members of the class to achieve national renown.

Peter N. Dobson, Jr. was a co-recipient of the University of Maryland Physics Prize, awarded to the first year graduate student demonstrating the greatest promise for a career of fundamental research in physics. Peter is attending U of M on an NSF pre-doctoral fellowship award. . . . **Ken Auer** writes that **Greg Lazarchik** has been transferred to the Market Research Department of Pittsburgh Plate Glass Chemical Division after three years in the Development Division. Coincidentally, I received a news clipping on the same subject. Greg must have a good press agent. Ken wants all his eastern friends to know that they don't have to leave home over the Christmas holidays this year because the Auers are staying in Ohio and not friend-hopping back East. Kidding aside, we had grown to look forward to these yearly treks east. . . . **Gene Depolo**, presently working for Lockheed in Los Angeles, was married in June to Judie Ann Bowen of California, and is living in Los Altos. . . . **Ted Compton** is at Ohio State University and has attained an enviable record of excellence with straight A's in his master's work and now on his Ph.D. All of this was accomplished while working at Batelle Institute and studying in the presence of commotion created by his three children. That's some doing!

Dee Munroe Watkins and her husband are living in Scarborough, Ontario, where he is on the faculty of the University of Toronto. They have a son who was born last summer. Also in the co-ed department, Mrs. **Marcia L. Stigum** has been appointed an instructor in economics at Northeastern University in Boston. . . . **Edward La Mothe** was married in April to Joan R. Simmons. They now live in Hartford.

Toni Schuman writes that **Jim Benenson** is helping protect our frontiers through a six-month Army hitch. . . . **Ted Kreuser**, recently graduated, is doing same in the Navy. . . . **Bob Barber** is in the Course XV graduate school, one of the first candidates for a Course XV Ph.D. . . . **Dick Hughes** has had an interesting and, I might add, academic life since leaving M.I.T. He writes, "After leaving M.I.T., I spent two summers at Harvard and the academic two years as a half time M.A. candidate at Colgate where I received the degree in political science in June of 1960. I am now on a fellowship at Claremont Gradu-

ate School working on a Ph.D. in political science and have received an appointment at Pomona College as an instructor (part time) next year. . . . Score: one wife (Christine B.) and two boys (David Donovan, 3, and Thomas Brautigam, 1).—**Cornelius Peterson**, Secretary, 65 Sweetwater Avenue, Bedford, Mass.; **Antonia D. Schuman**, Western Associate, Packard Bell Computer Company, 1905 Armacost Avenue, Los Angeles 25, Calif.; **Kenneth J. Auer**, Midwestern Associate, 760 Mistletree Road, Akron, Ohio; **William G. Daly, Jr.**, Eastern Associate, 125 White Street, Waverley 79, Mass.

'59

Rumor has it that there are still people from the class of 1959 doing original things. I still have not been informed of these activities. I expect everyone to write, as one of his approaching New Year's resolutions. Did receive a very nice letter from **Larry Laben**. Larry has completed his M.S. in Course XV. Last July, 1960, Larry and June Selden of Brookline were married. By the time this issue comes out, Larry should have reached the full rank of father. The Labens are now living in Portland, Maine, where Larry is working for the Portland Copper and Tank Works. Larry also writes of the goings-on of two other '59'ers. . . . **Neil Bernstein** married Sandra Cutler of Newton, and they have just recently had their first child. Neil has been working for Clevite Transistor in Framingham since graduation. . . . **Dave Weisberg** received his M.S. in civil engineering at Tech. Dave is now working for Charles Adams Associates, computer consultants in Bedford. Many thanks for the letter, Larry.

Have seen a few '59'ers around Boston, lately. **Bruce Blomstrom**, **Mike Nash**, **Al Oppenheim**, **Tom Crystal** are among others still studying in the Cambridge area. Let's hear from you. Please note my new address.—**Robert A. Muh**, Secretary, 1200 Commonwealth Avenue, Allston, Mass.

'60

Greetings to you all. Apologies for not having a column in the November issue, but circumstances proved my undoing. The combination of getting married (to Margaret Ann Olerich, a Wellesley graduate, on August 31) plus getting back to Boston resulted in my leaving the alumni files in Iowa. The files just caught up with me, and I find there is a lot of news to convey. As for myself, I am now in Course XV grad school and have a part time teaching assistantship. Please note my change of address below.

News of several weddings has reached me: On August 26, **Bill Morris** was married to Susan Follett, a graduate of Barnard College. Bill is at the Harvard Business School this fall. . . . **Gary Tepper** was married July 30 to Helen Katz from the University of Minnesota. Gary

is now working in Operations Analysis, Missile and Space Systems Group, Minneapolis-Honeywell, Inc. . . . **Tom Farquhar** was married over the summer. He and Barbara Bowers were married June 18. She is a graduate of Mt. Holyoke. Tom is working as a research statistician at Wyman-Gordon Company, North Grafton, Mass. . . . **Phil Roth** was married June 15 to Adrienne Yellen. Mrs. Roth is a senior at Brandeis University. . . . Three of our classmates have new dependents to report. **Larry** and **Linda Elman** sent word of a new daughter, Robin Amy, born July 17. At that time Larry was instructing in missiles at Shepard AFB. . . . **Mike Gross** wrote to say that they are parents of a baby boy as of June 6. . . . **Morris Salame** wrote of a new daughter, their second, named Laurie. Mike is working for the Plax Corporation in Hartford, Conn., doing product and process research in high polymer applications.

I've also received news of several fellows, courtesy of Uncle Sam: **Howard McDowell** completed officer orientation at Fort McClellan, Ala., this summer. . . . **Al Wofford** accomplished the same thing at Fort Lee, Va., as did **Al Tobin** at Fort Belvoir, Va. Congratulations men! . . . Also **Steve Cohen** received a commission as an ensign in the Naval Reserve at the Naval Air Station, Pensacola, Fla. . . . Miscellaneous news from around and about: **Lionel J. Saint-Paul** received a master's of E.E. from the Polytechnic Institute of Brooklyn last June. . . . **Michael Hecker** spent two weeks last summer at the Institute, teaching in a special language workshop sponsored by the Massachusetts Department of Education. . . . **Al Shalleck** wrote a nice letter this summer. He spent most of last year in New York working at the I.T.T. labs in New Jersey. His roommate was **Dave Paul** who was working as an apprentice architect for Walter Kidde and Sons in New York. At last word Dave was in the army and assigned to NATO in France. Al spent six months in the Signal Corps and is now at the Harvard Business School. He also mentioned that he was working with **Fred Rehhauser** and had been seeing a lot of **Mark Dichter**. Mark is "working in New York as an audio-engineer and is making art films on the side. Actually his latter occupation is now taking up most of his time." . . .

Sid Altman has joined the Crowell-Collier Publishing Company as science editor for Collier Books, their new paperback department. Sid spent the past academic year as a teaching assistant in the Department of Physics at Columbia University. . . . **Steve Porter** received a degree from Oberlin College this past June (but they didn't tell me what it was in). . . . **George Lewicki** received a master of science in E.E. at Caltech last June. . . . Courtesy of **Norm Bednarczyk**, I also received the following information. . . . **Bill Blatchley** has been at Fort McClellan, Ala., in between working for Consolidated Edison in New York. . . . **Hank Perkins** was doing graduate work in mathematics at Columbia University. . . . **Burgess Rhodes** was a teaching assistant in mathematics at Lehigh University.

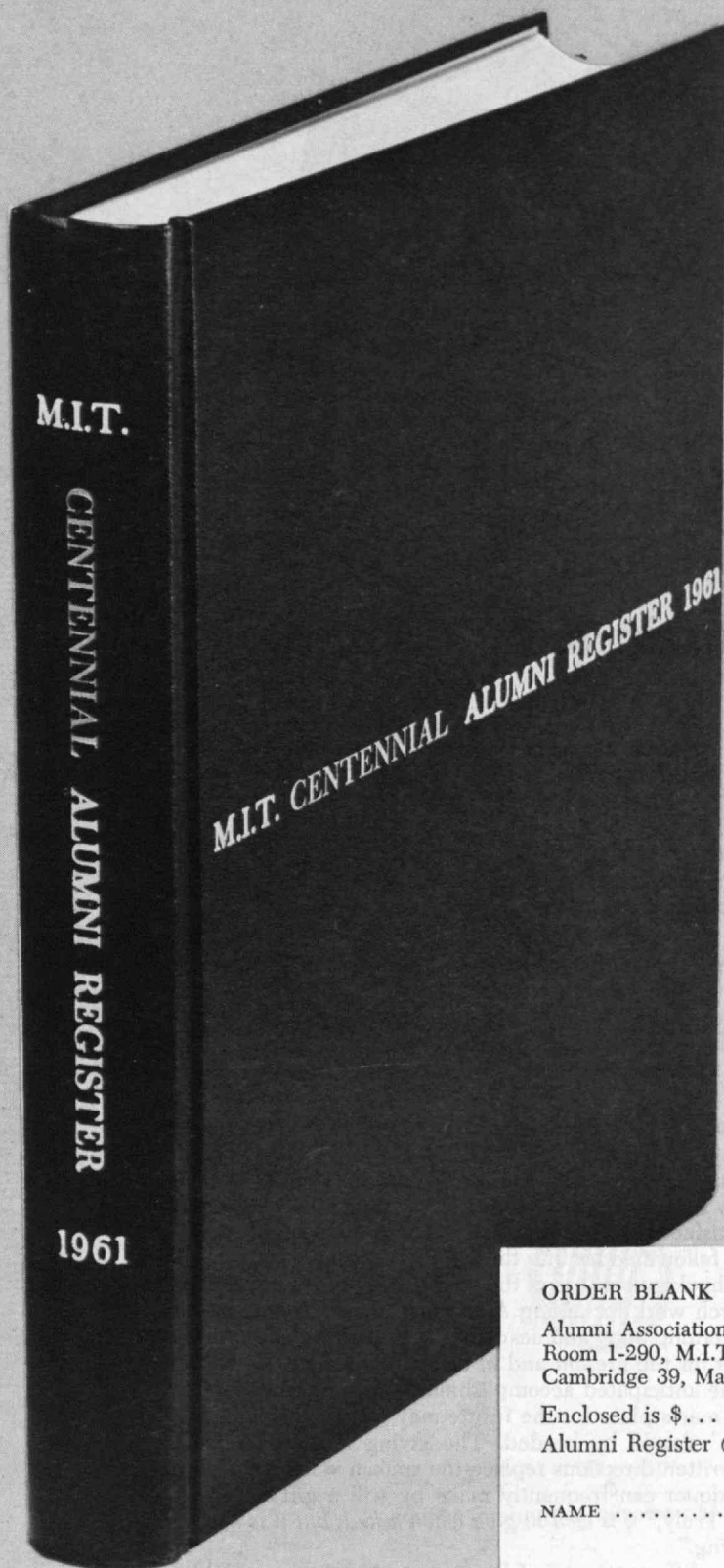
. . . **Milt Reed** was doing grad work at M.I.T., in metallurgy as was **George Koo** in chemical engineering. Norm is doing grad work at Tech in the Department of Nutrition, Food Science and Technology. How's that for a name? Thanks for the letter, Norm. . . . That's all the news I have for now. Don't forget to jot down the new address below.—**John B. Stevenson**, Secretary, 106 Ellery Street, Cambridge, Mass.

'61

Greetings from the heart of industrial Cambridge. A slim month for news, as you can see at a glance, in terms of the numbers of items. With six months since graduation barely passed, the members of the class can hardly have reached the steady state. Drop me a card now and again, as time goes on, letting me know news that might be of interest to the group. . . . I have a memo here that **Joe Skendarian's** 35 goals scored in last spring's lacrosse season racked up an all time M.I.T. record. Hope you all saw the pictures of **Joe**, **Paul Ehrenberg**, **Don Morrison**, and the varsity crew, which appeared in the July Review, on the page following the '61 notes. To repeat, an annual contribution to the Alumni Fund brings you The Review regularly. Size of donation unspecified.

Should have had this item in the November issue, but just got word that **Hank Schleinitz** received Sigma Chi's International Balfour Award last June, marking him as that fraternity's outstanding undergraduate for 1961. The award was made on the basis of scholarship, campus activities, leadership, personality, and fraternity service—and well-justified. Congratulations, Hank, albeit somewhat tardily. . . . **Richard de Neufville** and **Peter Buttner** completed Army officer orientation courses last summer; the former at the Engineering School, Fort Belvoir, Va., and the latter at the Signal School, Fort Monmouth, N.J. . . . Named the outstanding student for last year of M.I.T.'s IRE-AIEE Joint Student Branch was '61's **Anthony Kramer**. The basis of the award was all around service to the Student Branch. He is continuing on in graduate school here, with a teaching assistantship in Course VI.

A word or two on the Alumni Council and our representation on it. This is the executive power behind the Alumni Association; in general it oversees the work done in the Alumni Office here at school, meeting seven times a year in Cambridge for this purpose. Members, representing the classes and clubs, total about 135, and are elected at reunions. For new classes, the Executive Committee of the Council appoints an interim representative to hold office until that class has its first reunion. They have asked me to represent '61. Pending violent recall action by the outraged members of the class, I shall do so. Merry Christmas to all. Write if you get work. Seriously.—**Joseph Harrington, 3d**, Secretary, M.I.T. Graduate House (212A), 305 Memorial Drive, Cambridge 39, Mass.



521

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and the prophet replied:

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The tale is told of Almustafa, the prophet, who, having awaited for many years the ship that would return him to the place from whence he came, was making the final descent to the shore when the folk of Orphalese crowded about him. They besought him before departing to "disclose us to ourselves, and tell us all that has been shown you of that which is between birth and death."

With words of wisdom, an answer appropriate was given to the woman holding a baby, to the ploughman, to the merchant. Begged one, "Speak to us of GIVING," and the prophet replied:

"It is well to give when asked, but it better to give unasked, through understanding;

And to the open-handed the search for one who shall receive is joy greater than giving. All you have shall some day be given;

Therefore give now, that the season of giving may be yours and not your inheritors'."

Through the years the prophet's words have held true, for even today he who "through understanding" includes the MASSACHUSETTS INSTITUTE OF TECHNOLOGY as a beneficiary in his will can experience thereby a two-fold satisfaction. The successful culmination of his search for a worthy recipient and the anticipated results his generosity will assist in accomplishing. These satisfactions give an added value to the span of man's days and protect his usefulness to his fellowmen far into the future.

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But the search, the finding, and the anticipated accomplishments are not enough; for without the properly-worded record, man's plans for the future may go awry. Hence the prophet's importuning, "—give now," should be heeded. The giving need not be an immediate physical transaction, for written directions replace the spoken word when the speaker is no longer present, and a donor can frequently make by will a gift which is larger than he can make while living. Truly, *"it is well to give when asked, but it is better to give unasked, through understanding."*

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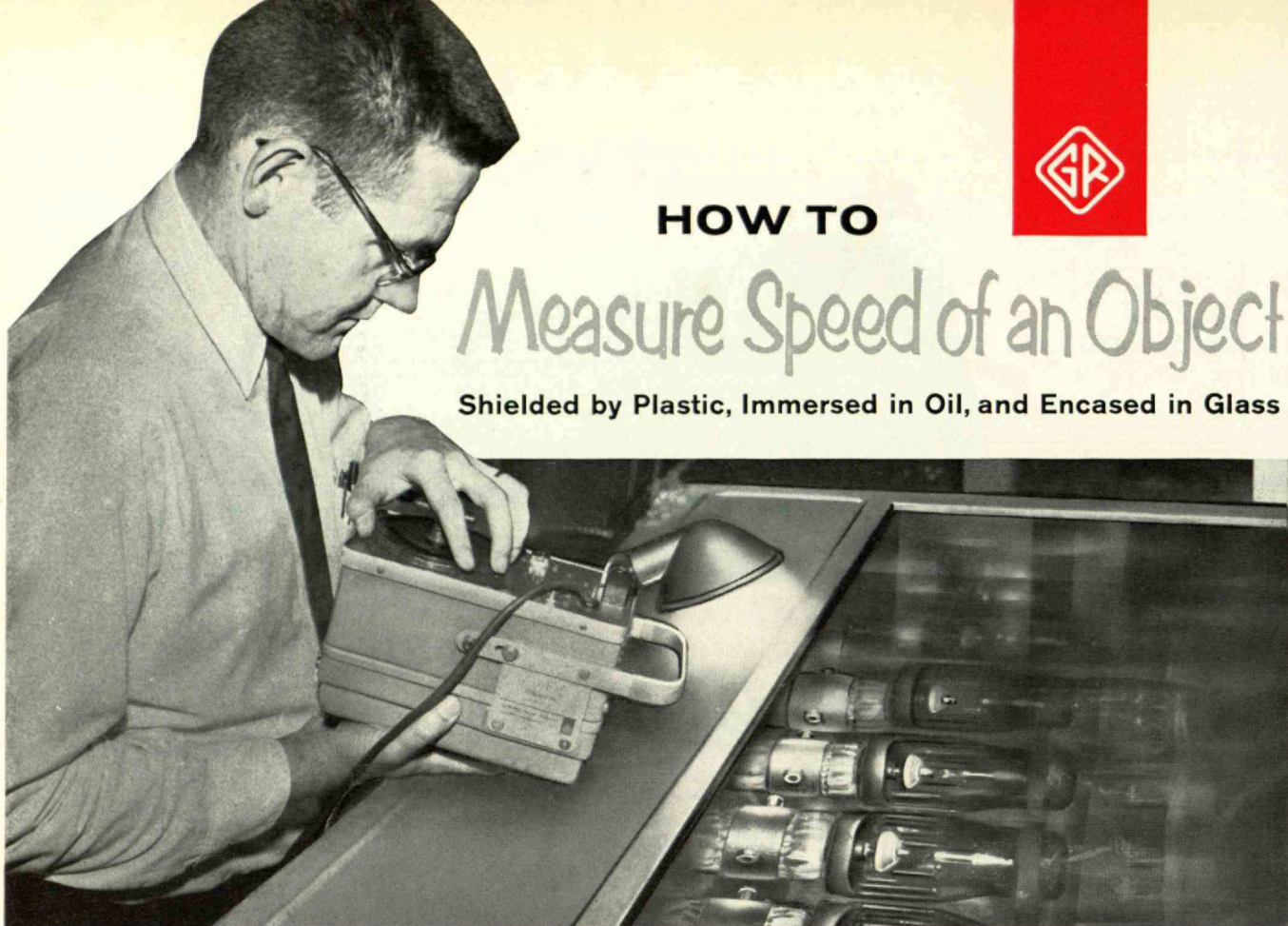
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